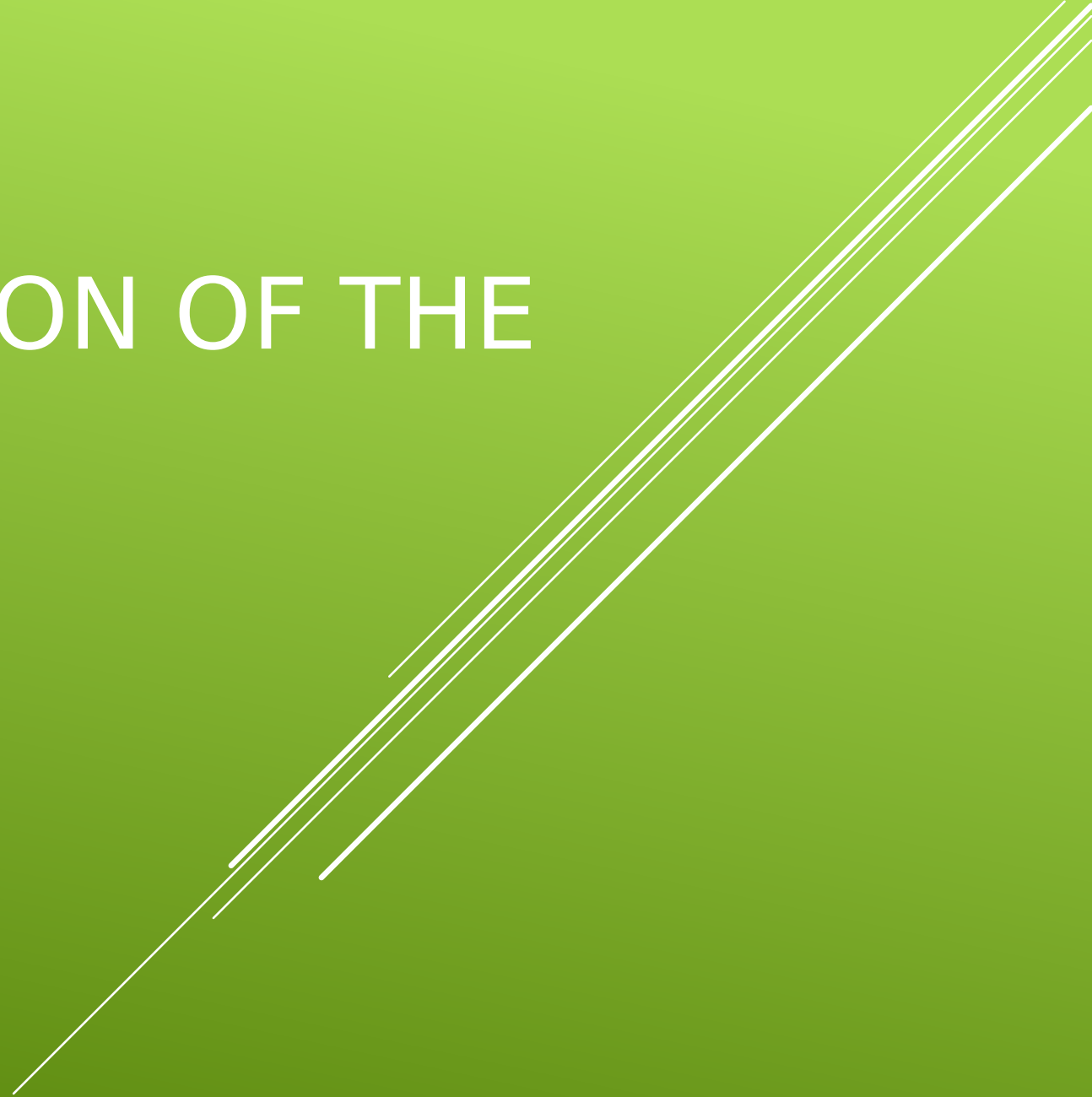


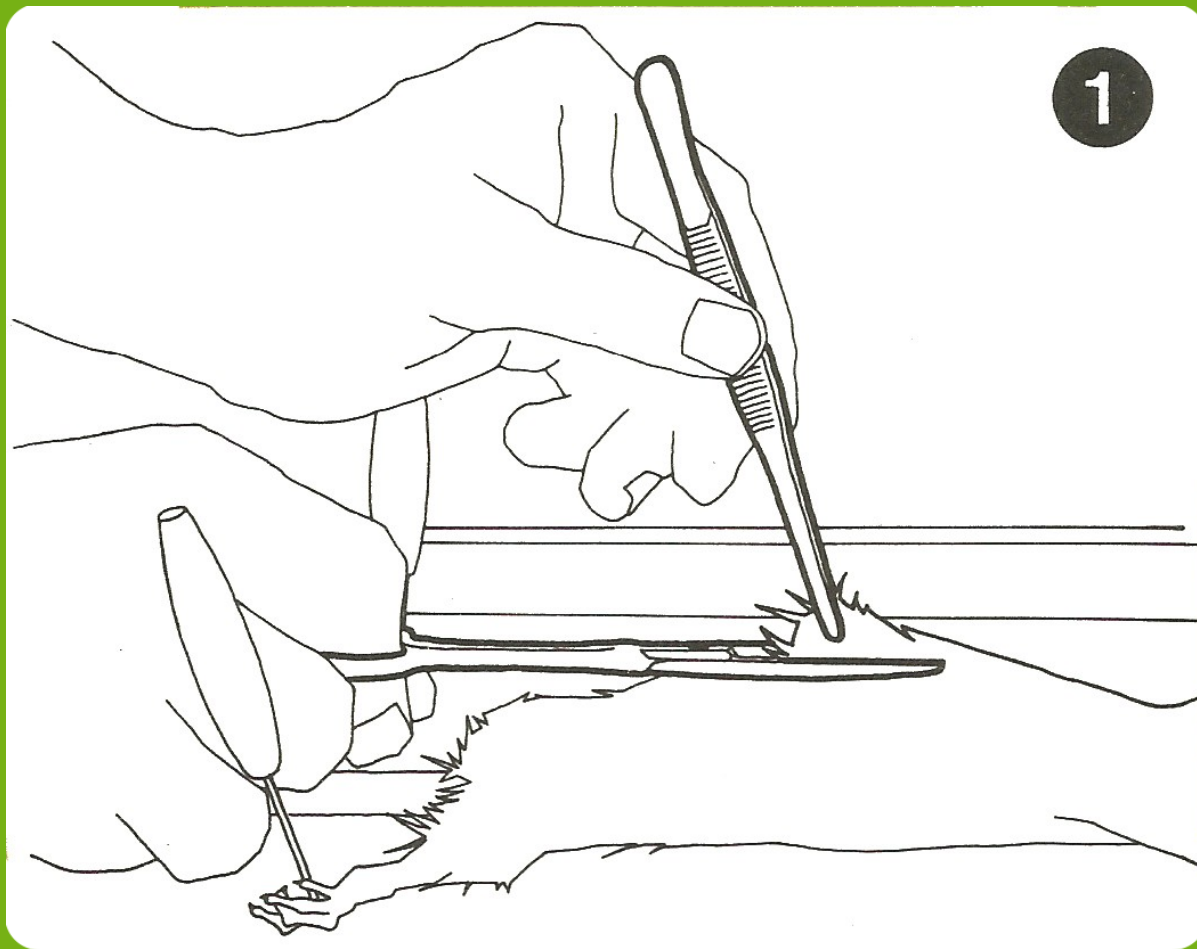
GENERAL DISSECTION OF THE RAT



INTRODUCTION

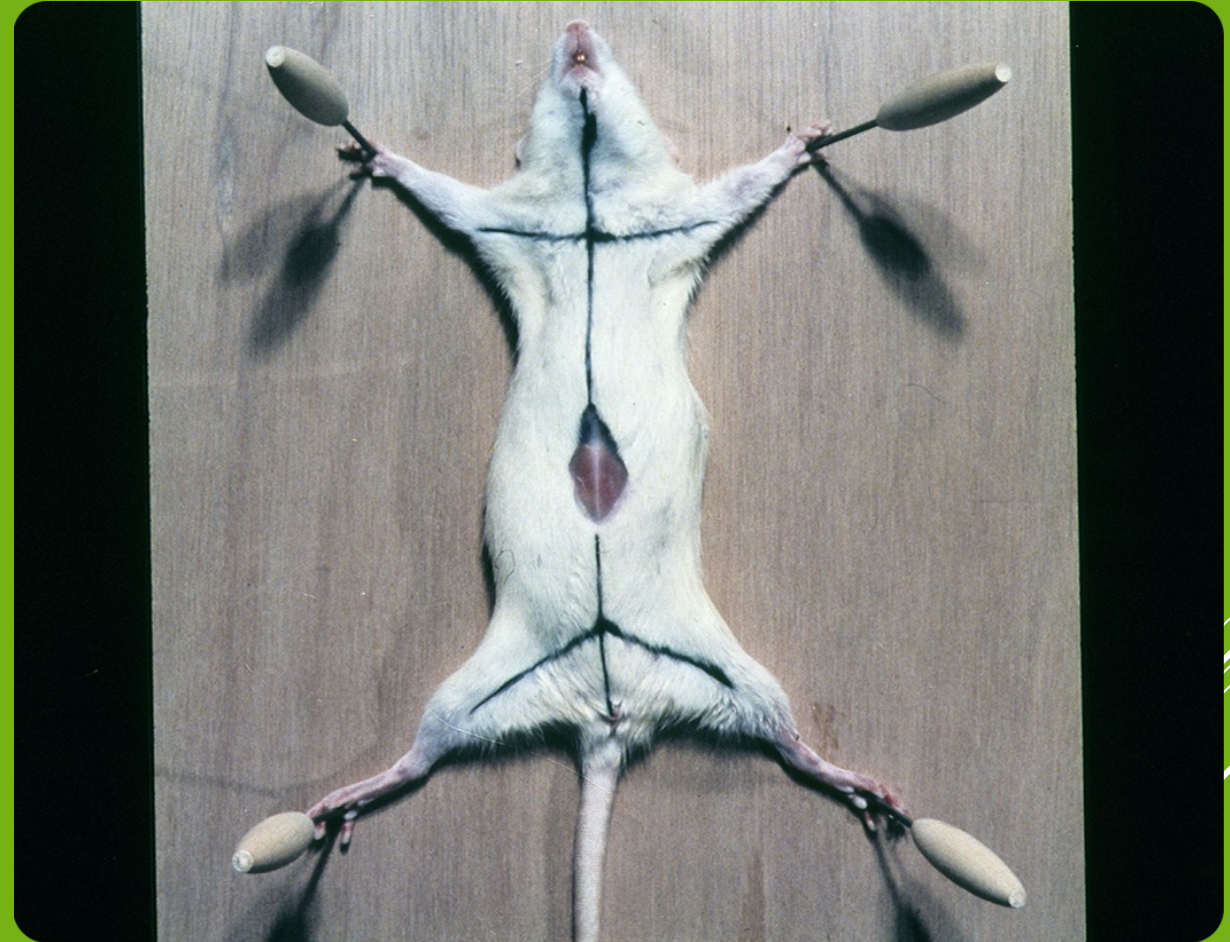
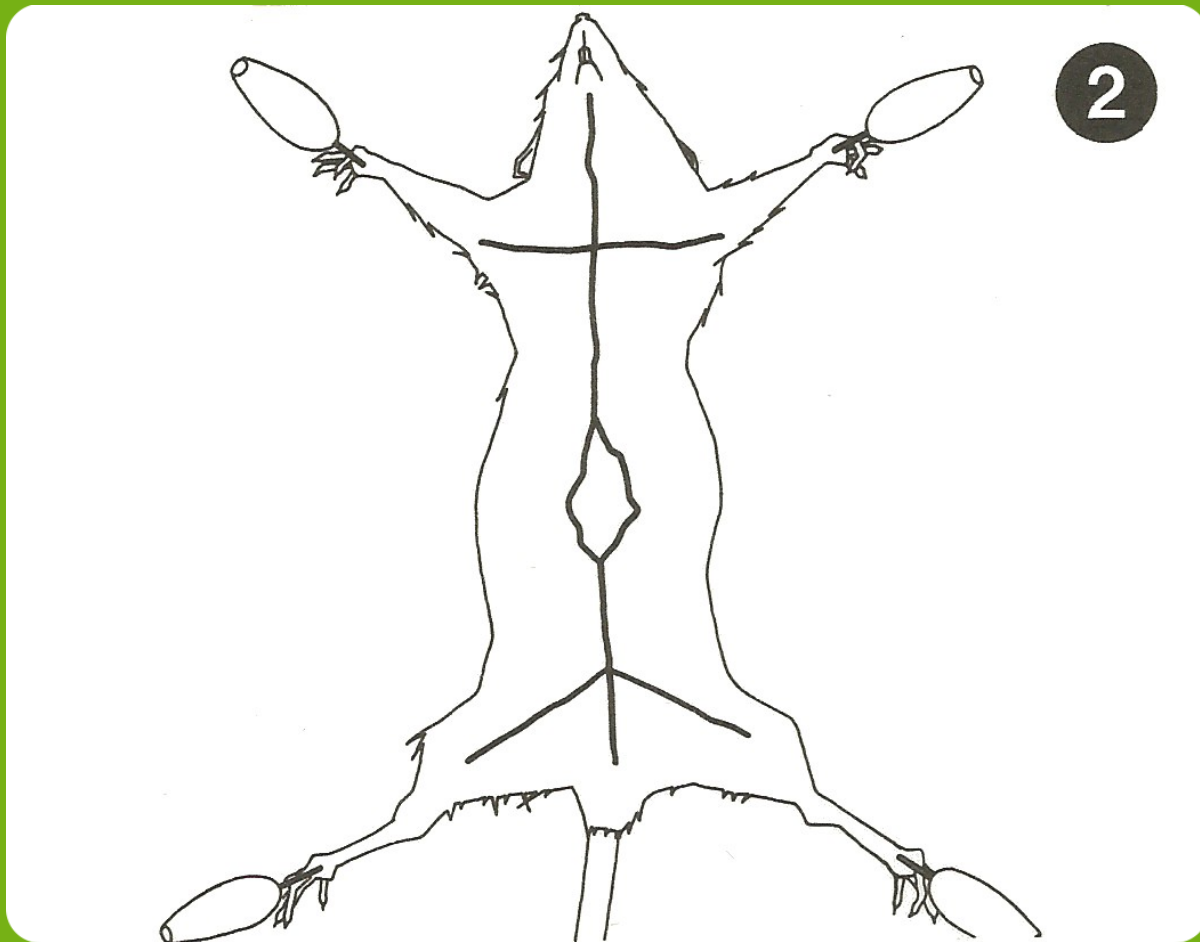
On the screen you will see drawings and photographs of each stage of the dissection. Listen to the instructions carefully and when you hear this sound stop the slideshow and perform the steps as directed.





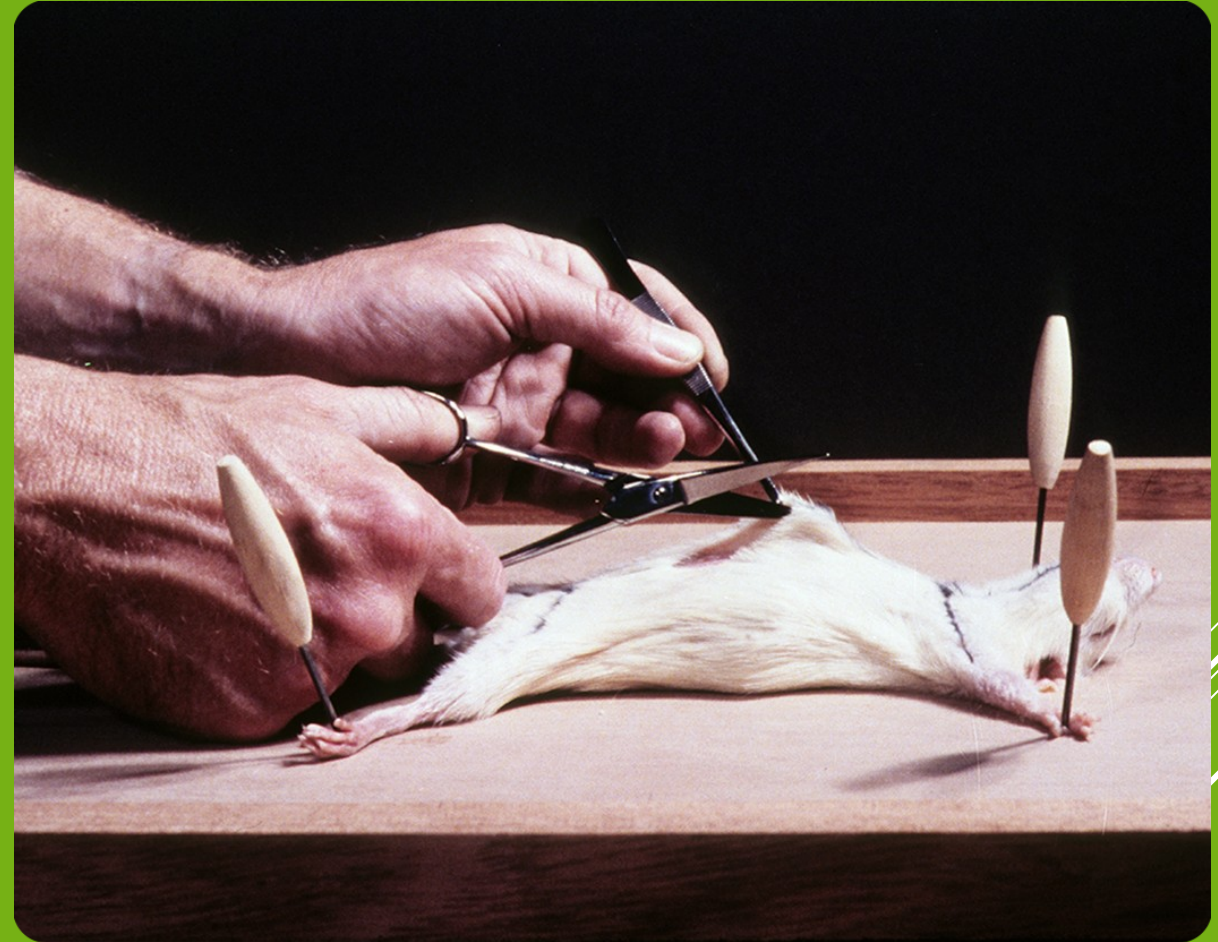
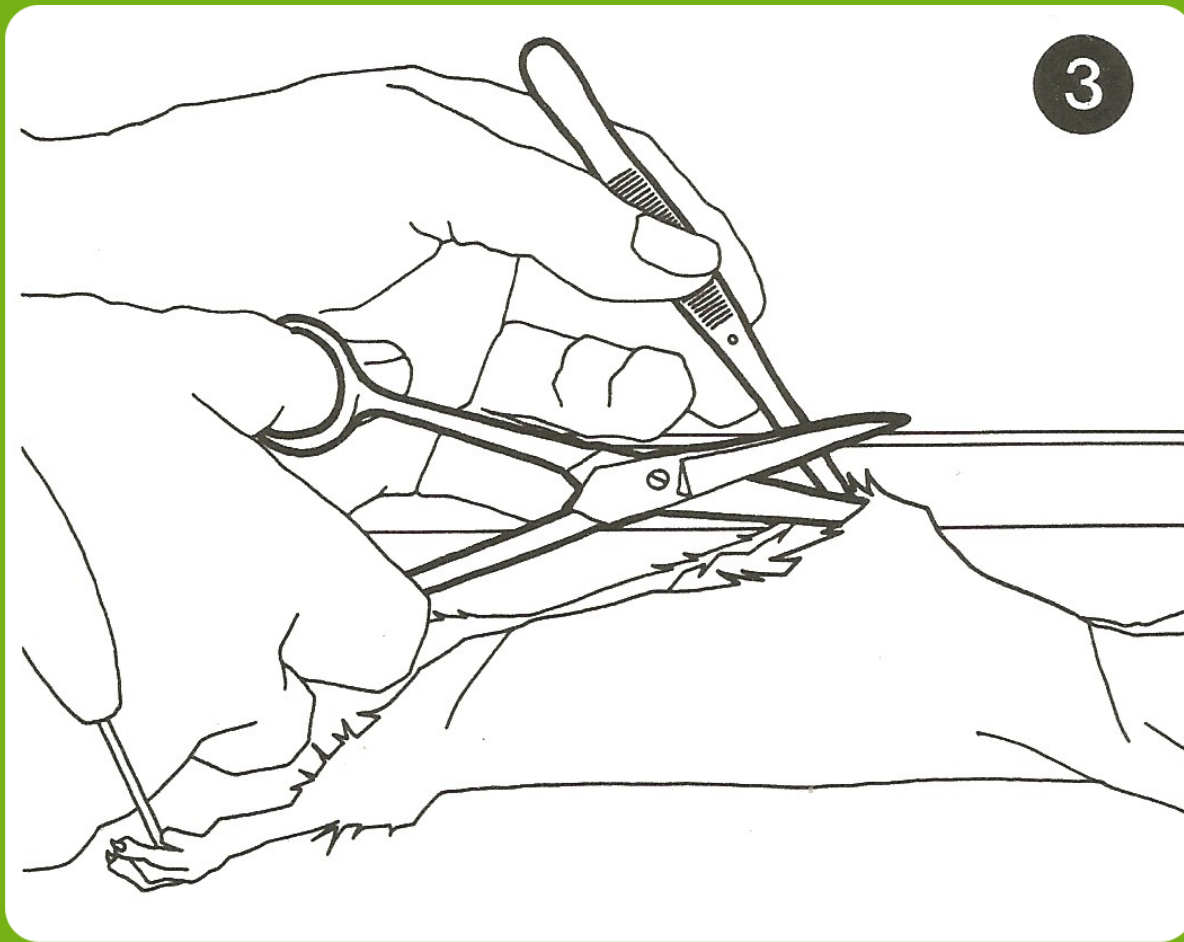
1. Pinch up a fold of skin and cut off horizontally.





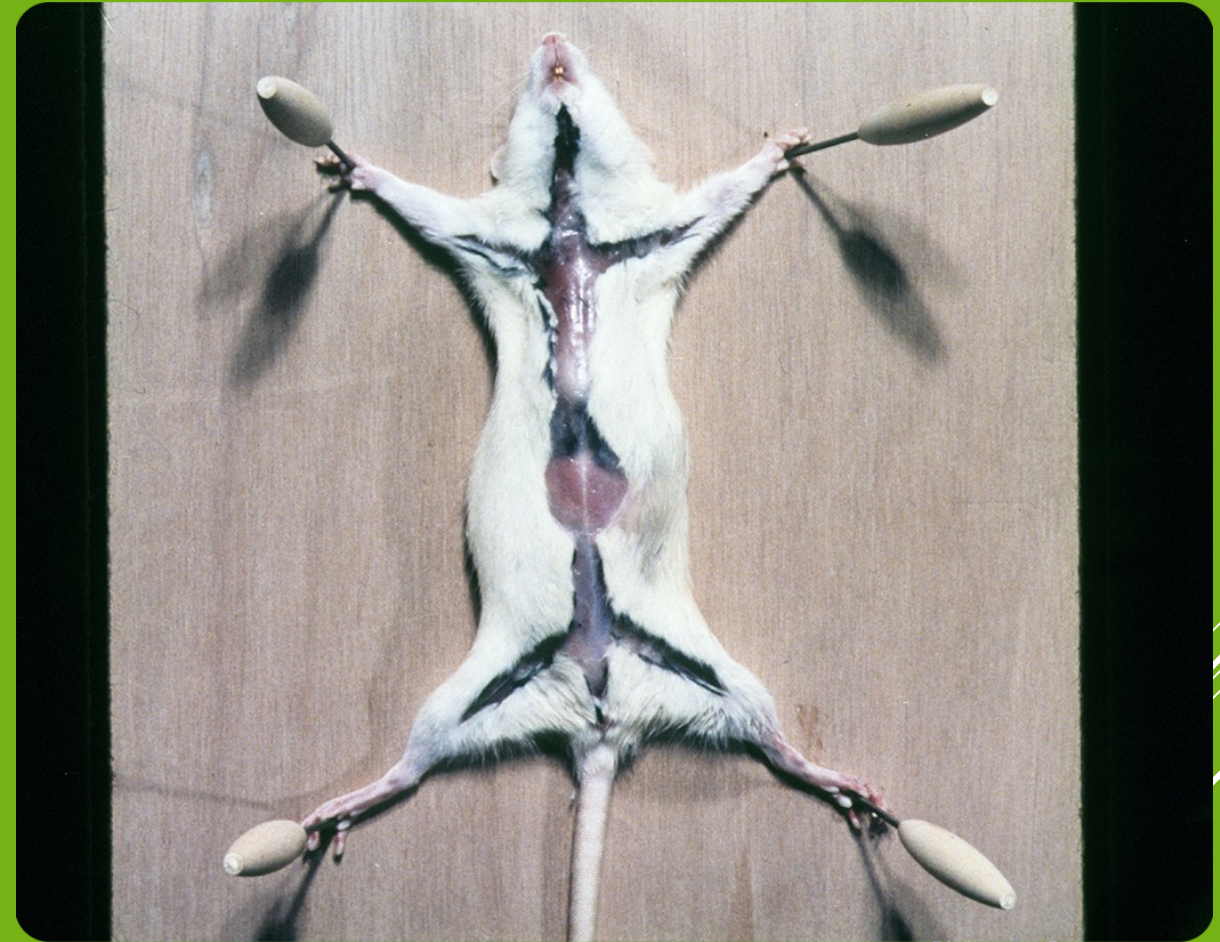
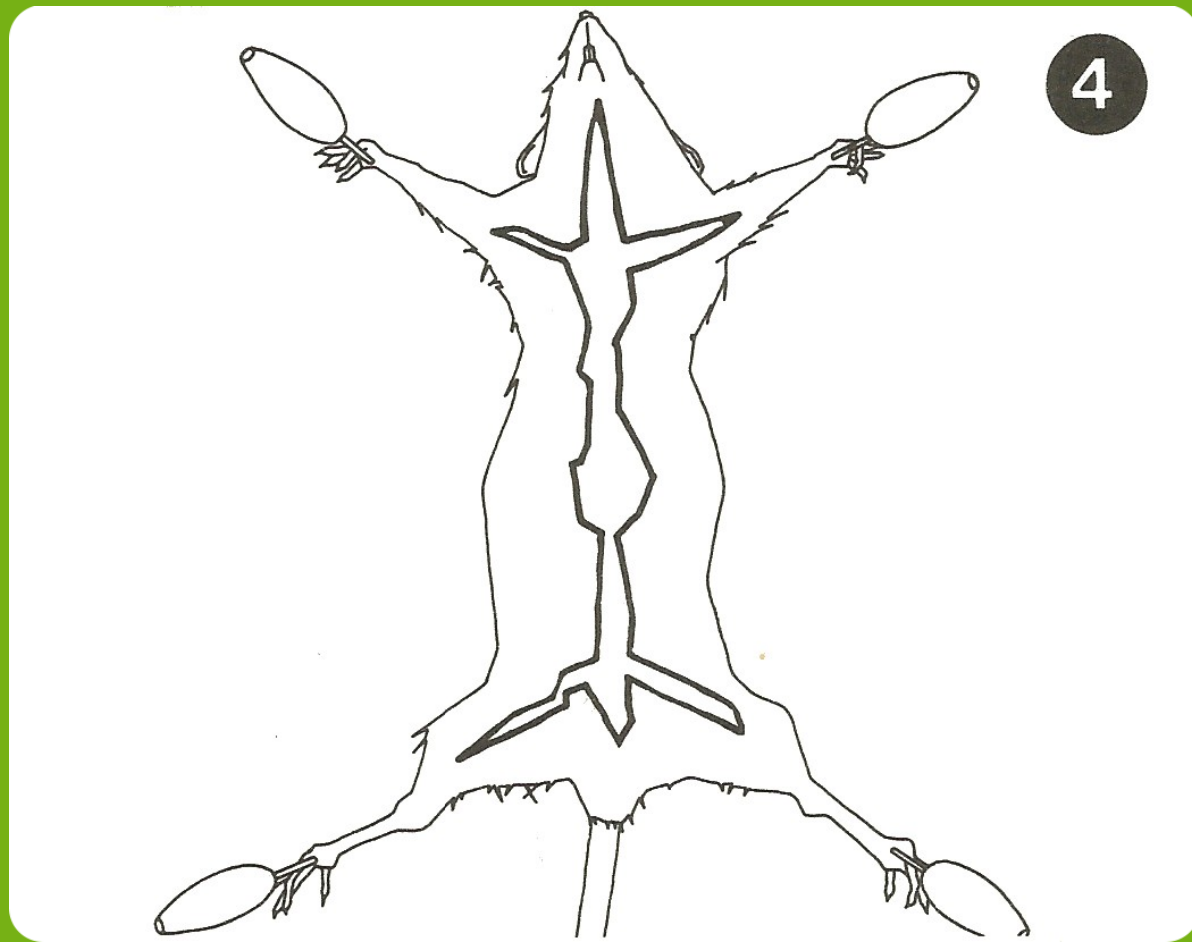
2. The incision will be extended along the lines indicated.





3. Extend the initial incision with scissors, keeping the lower blade forced up under the skin.

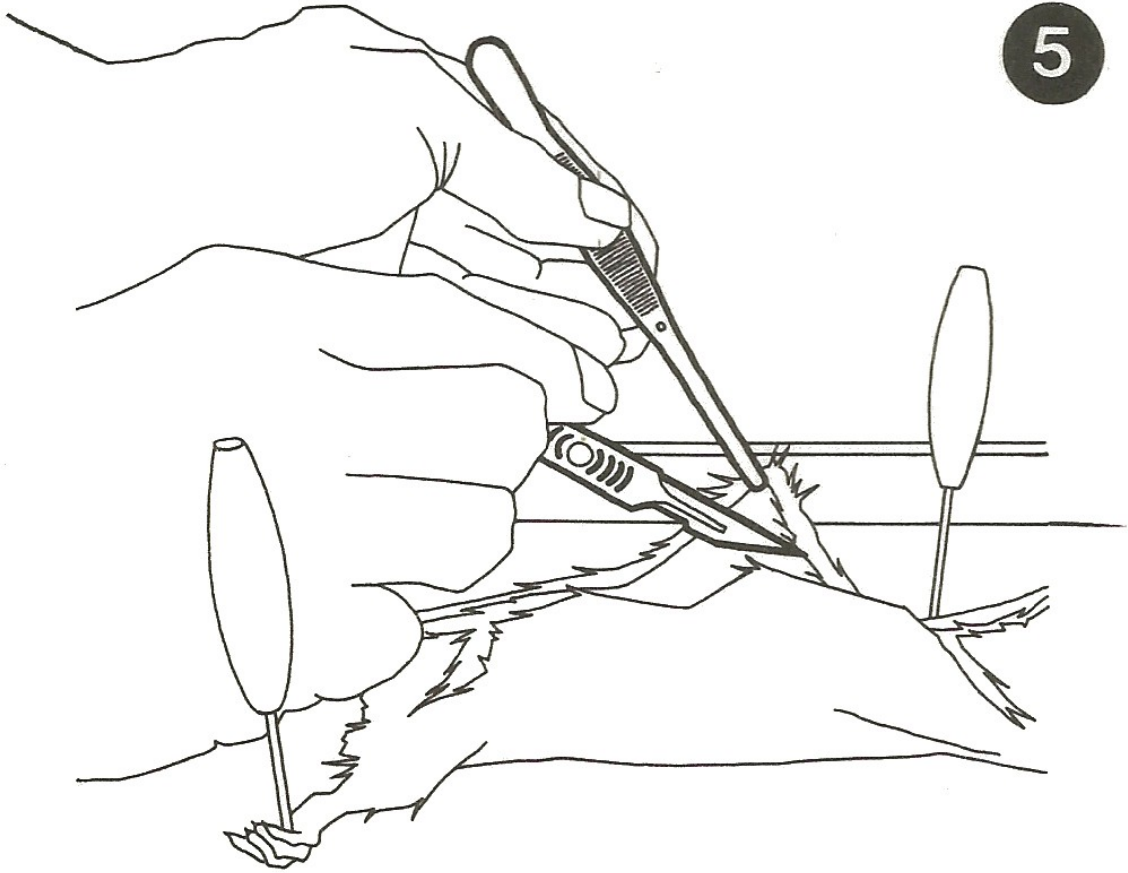




4. Completed incision of the skin.

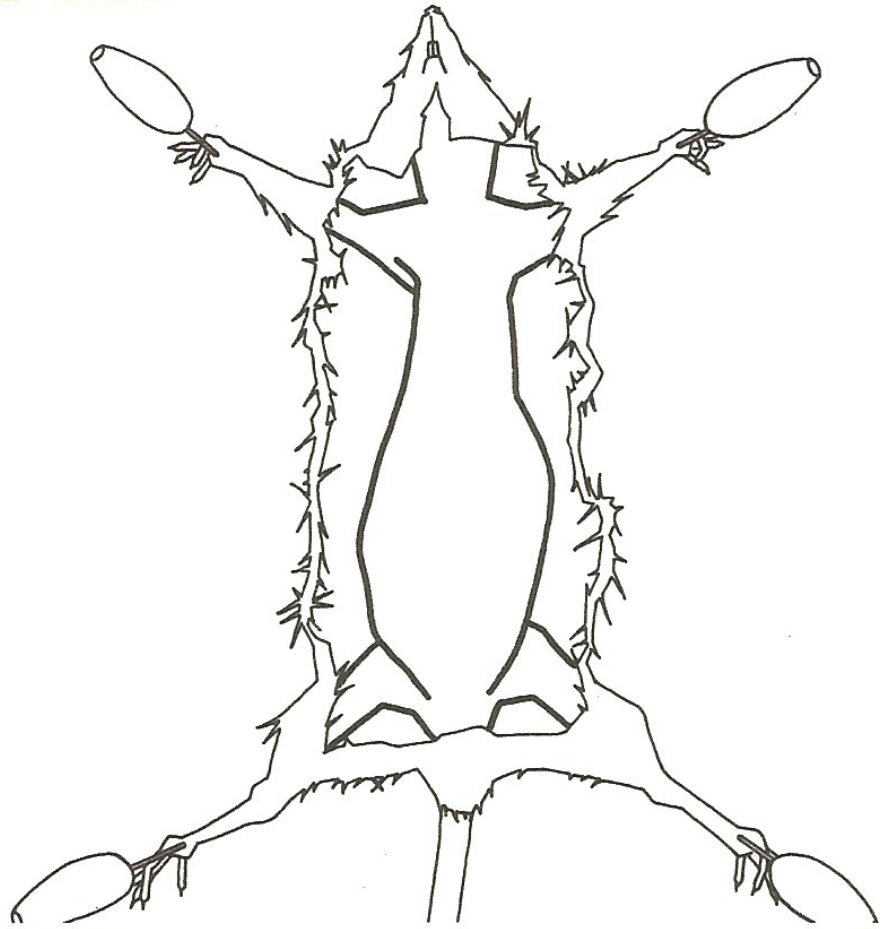


5

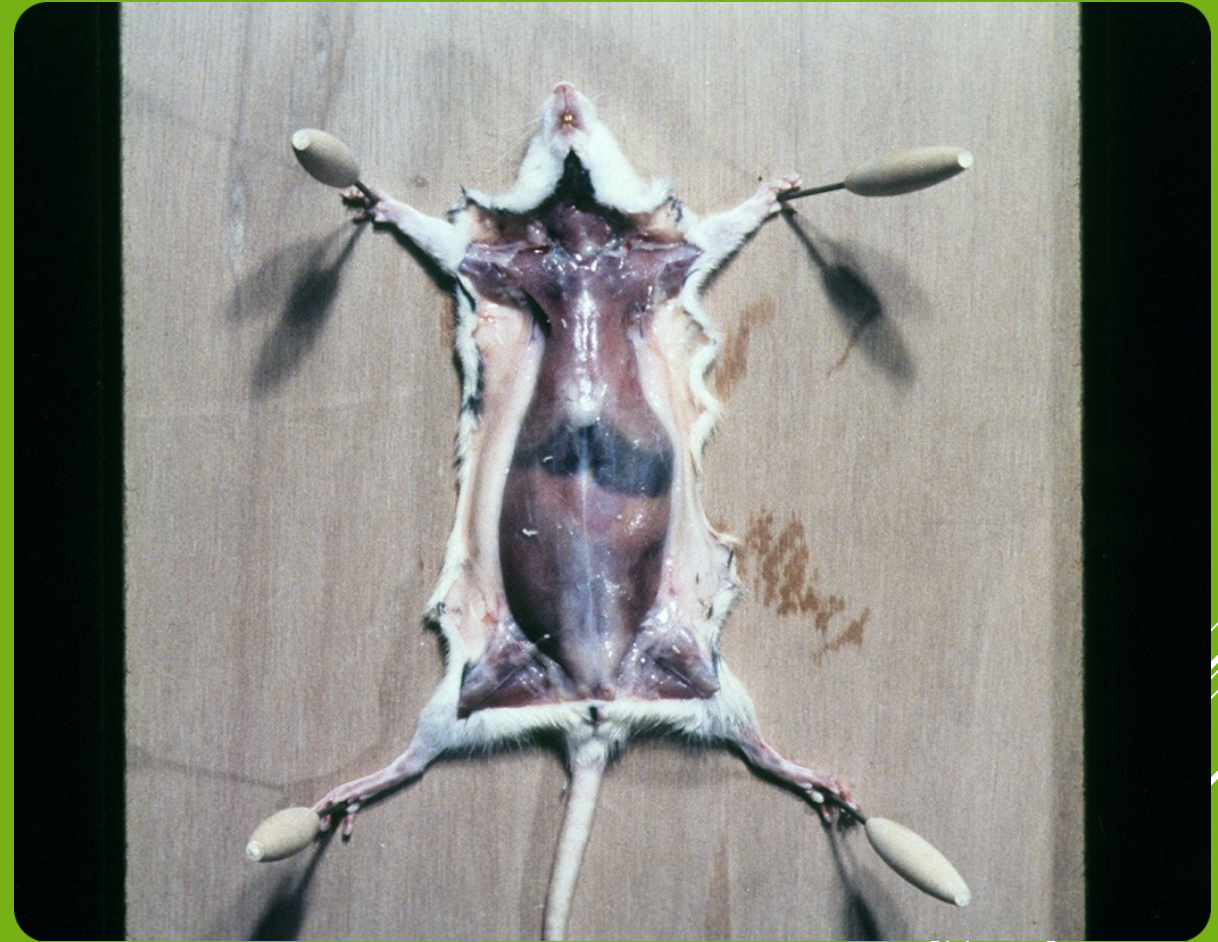


5. Scrape the underside of the skin with a scalpel to free it from the underlying muscles.



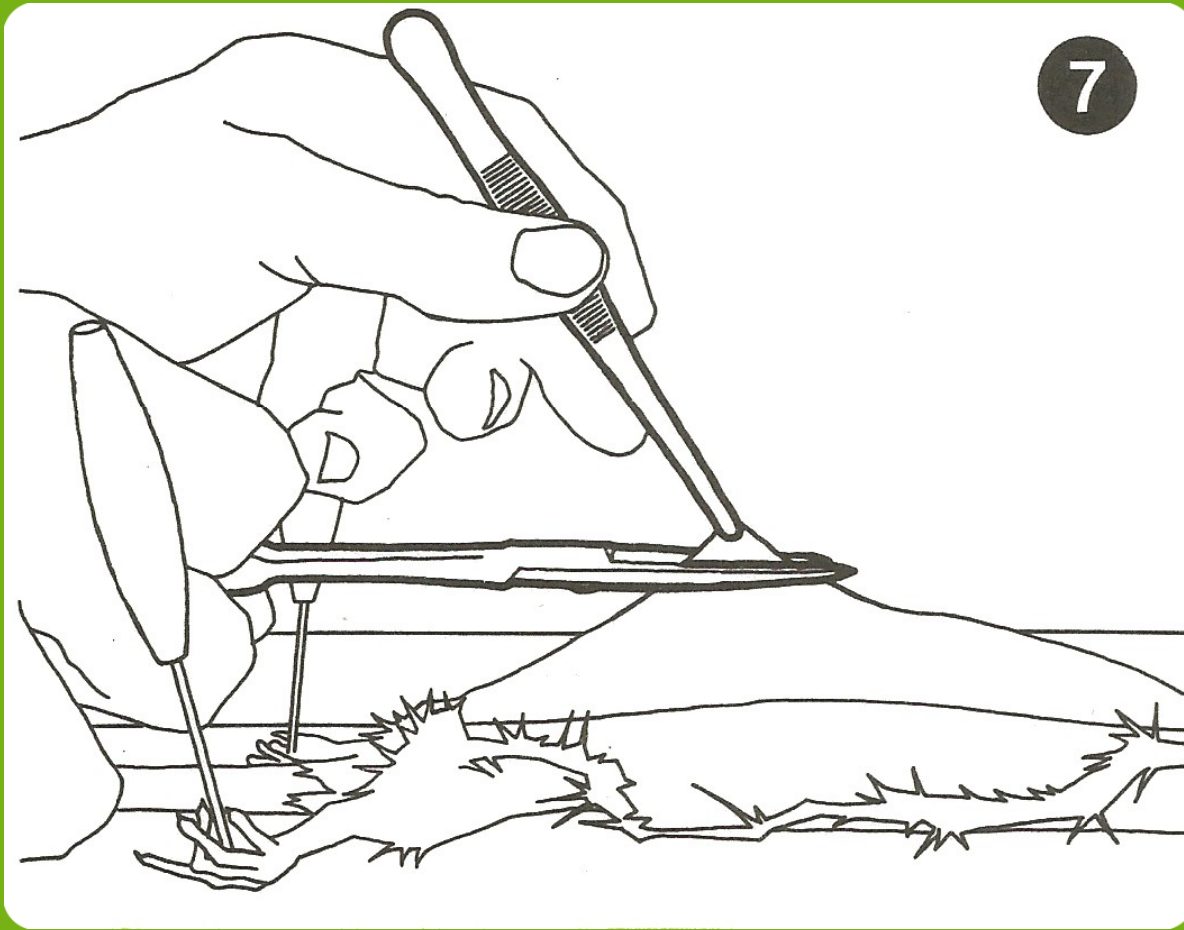


6



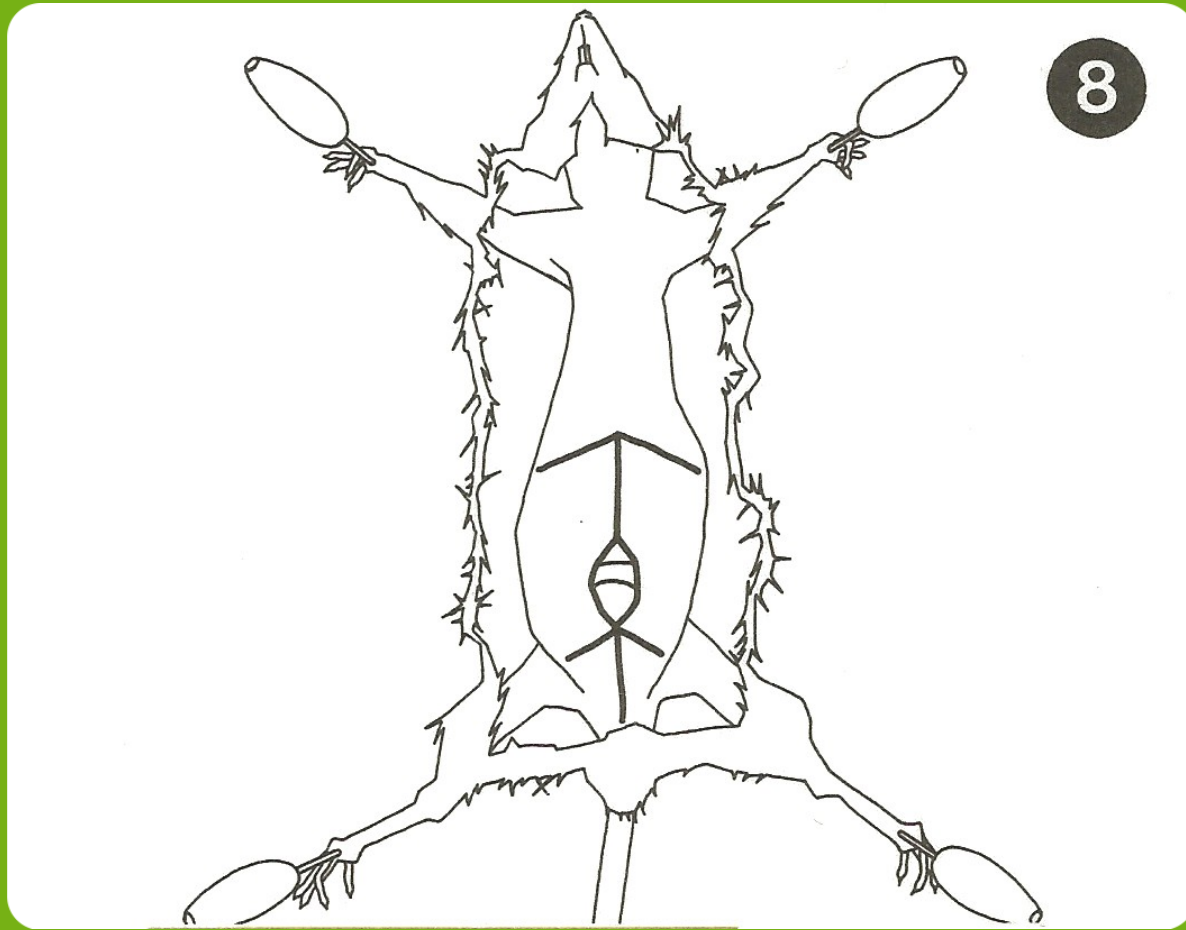
6. Skin freed from underlying muscles.





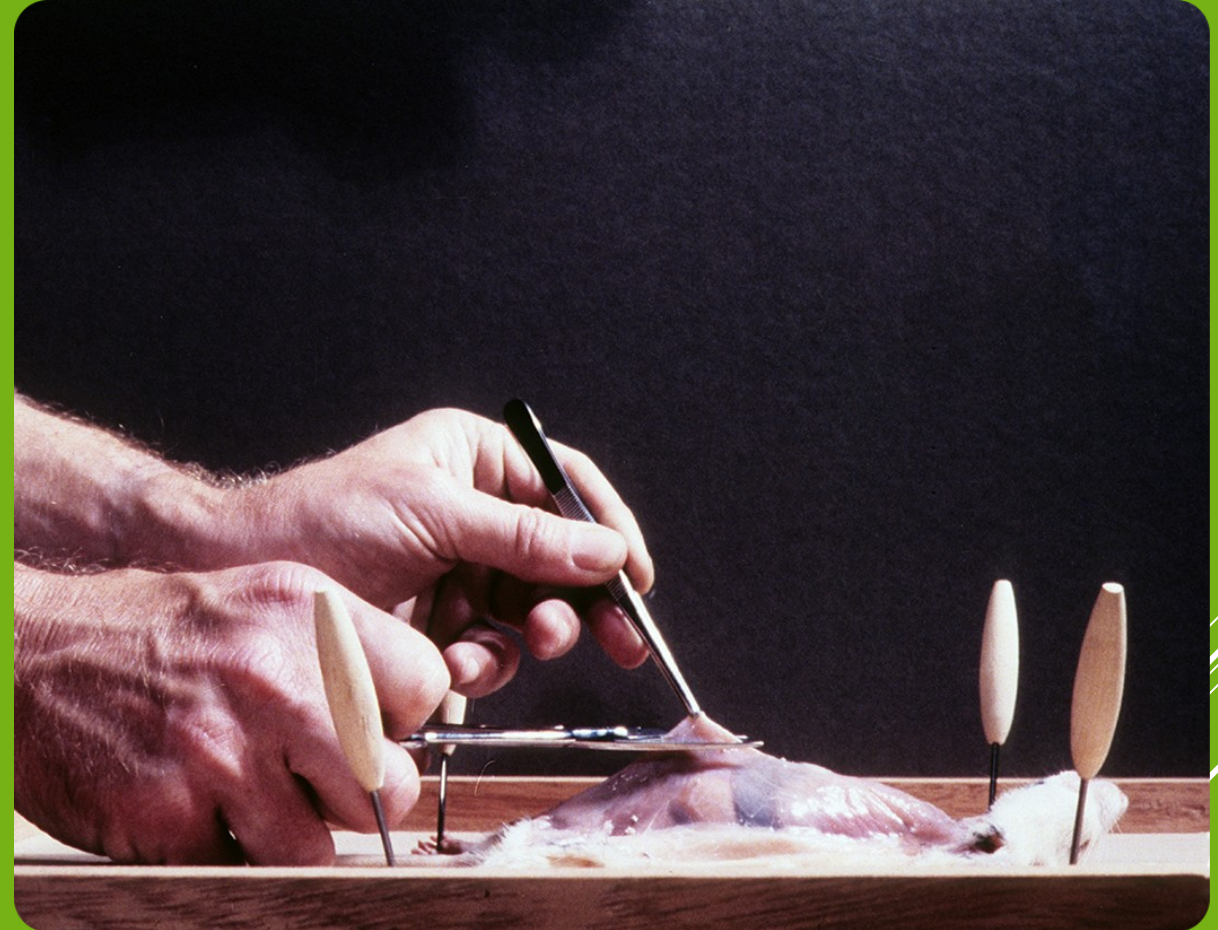
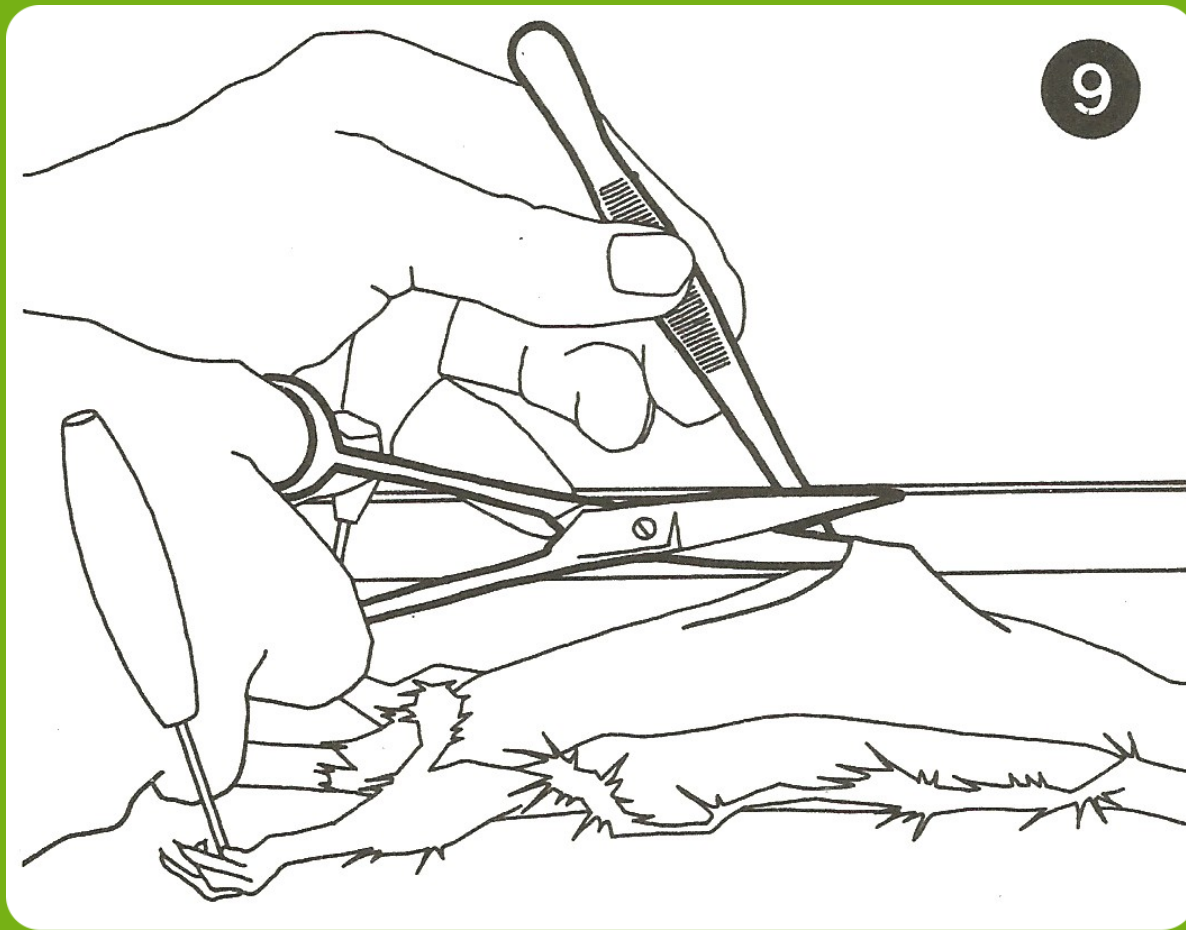
7. Pinch up a fold of abdominal wall and cut off horizontally.





8. The incision will be extended along the lines indicated.

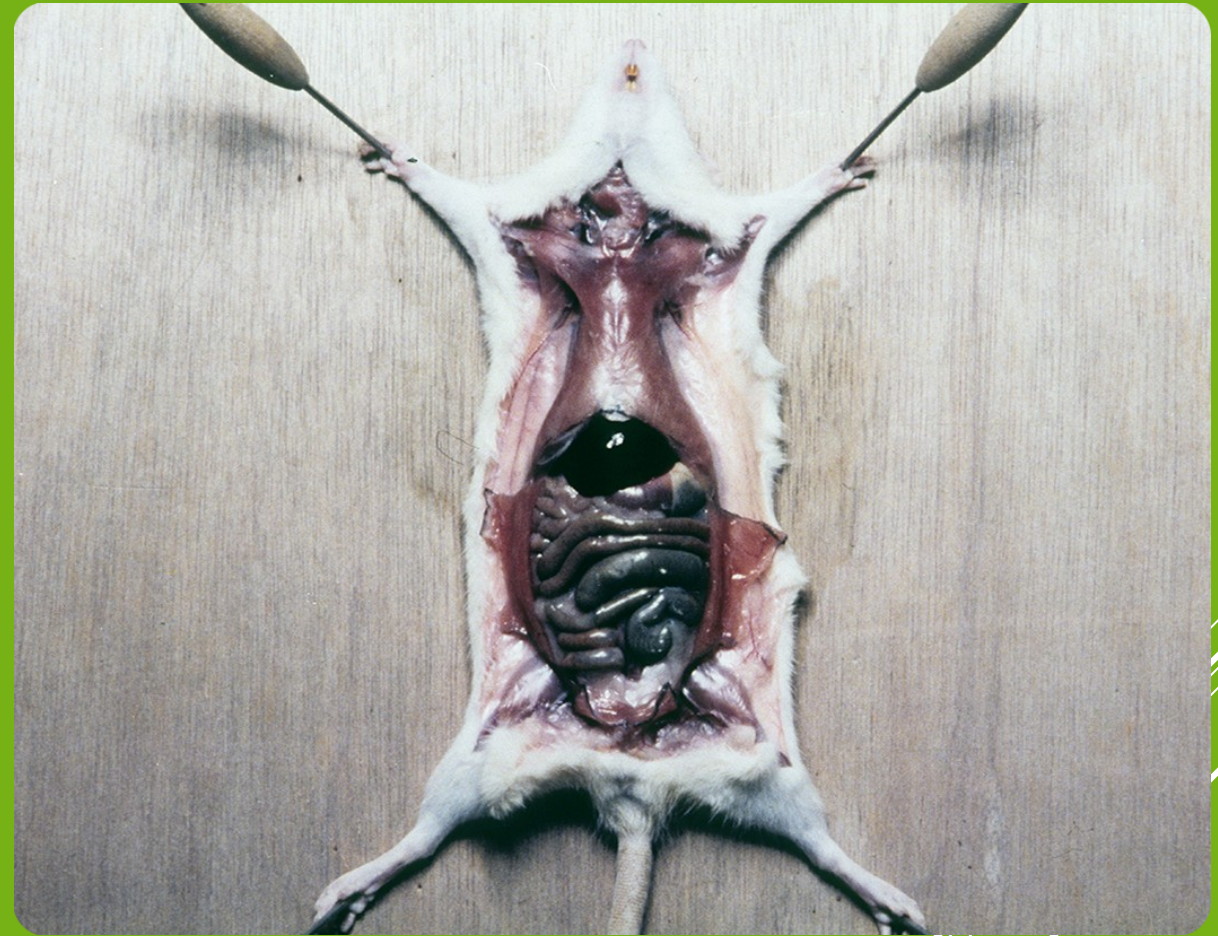
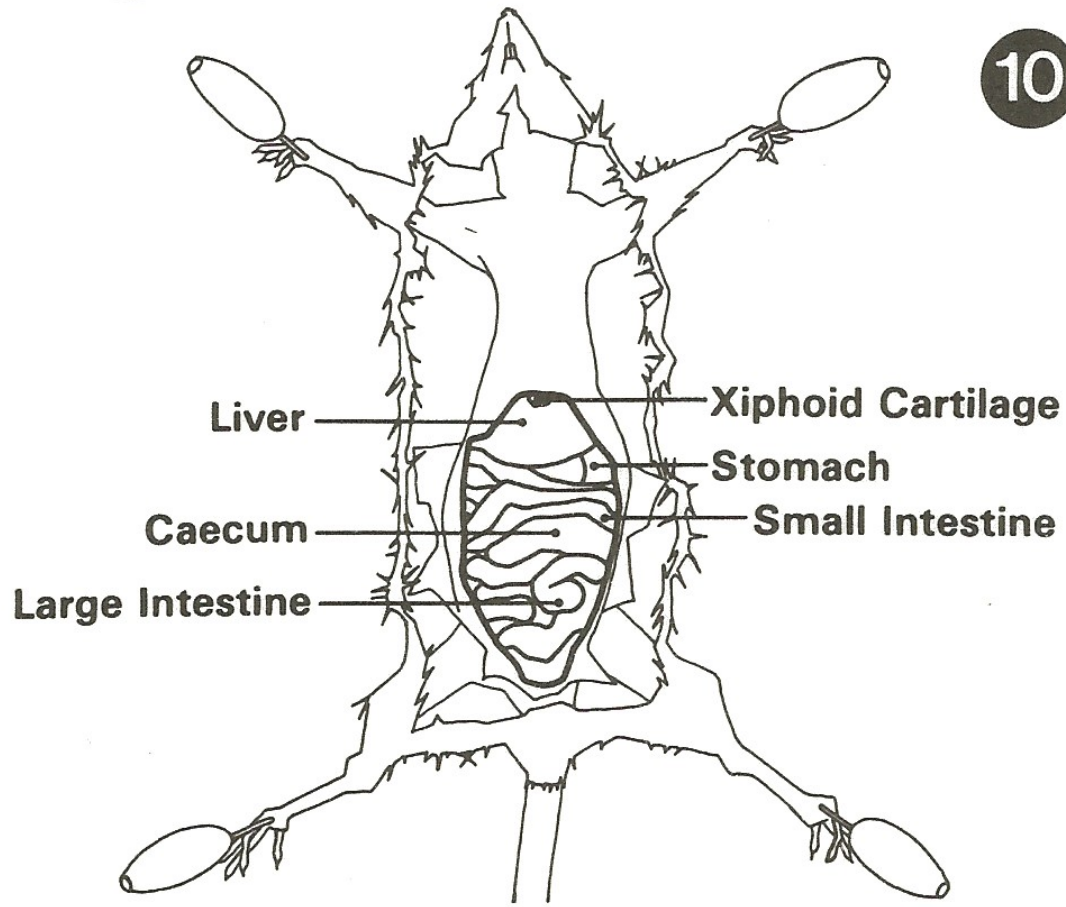




9. Extend the initial incision with scissors, keeping the lower blade forced up under the incision wall.



10



10. Examine the abdominal contents in place and identify as many of the structures as you can.



11

Small
Intestine

Caecum

Large
Intestine

Liver

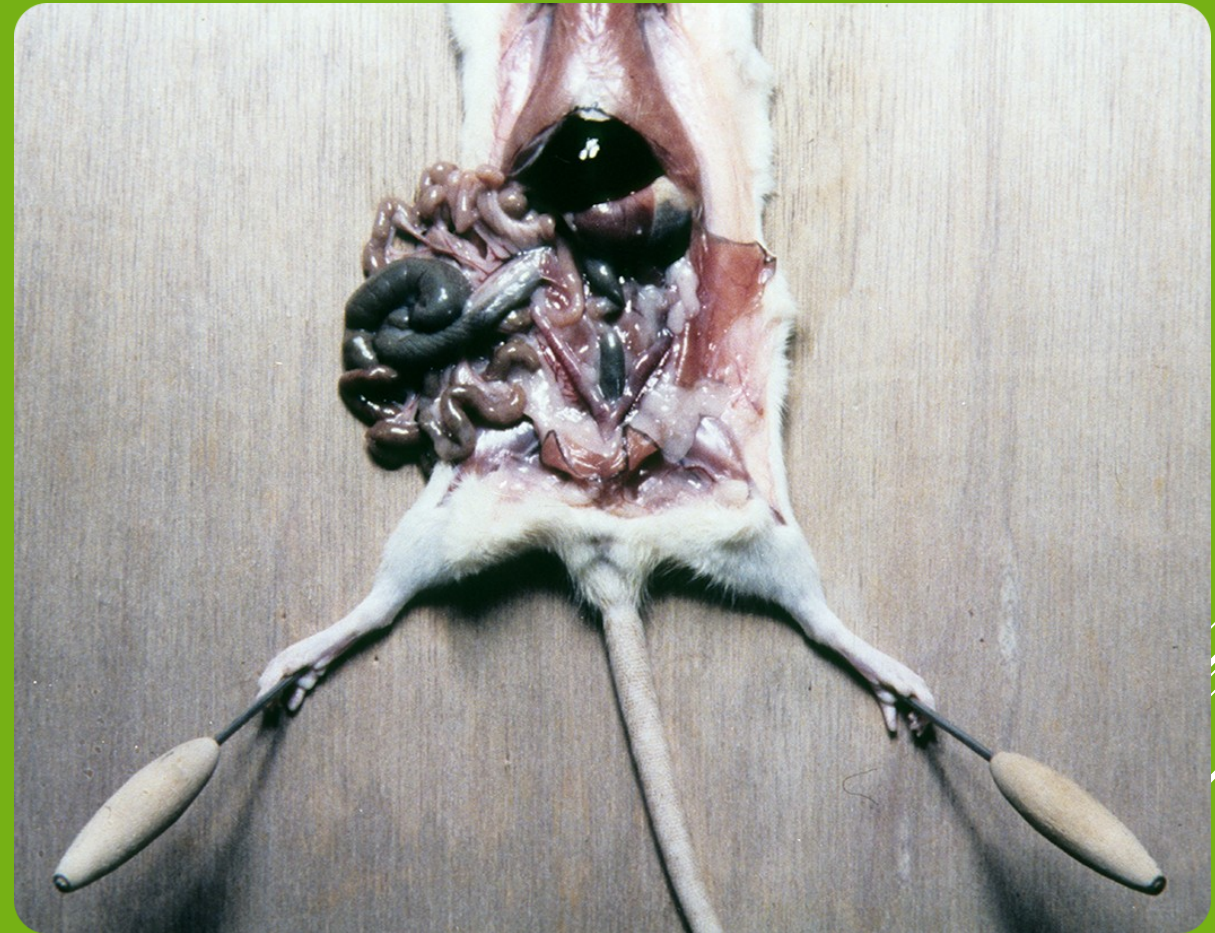
Stomach

Spleen

Rectum

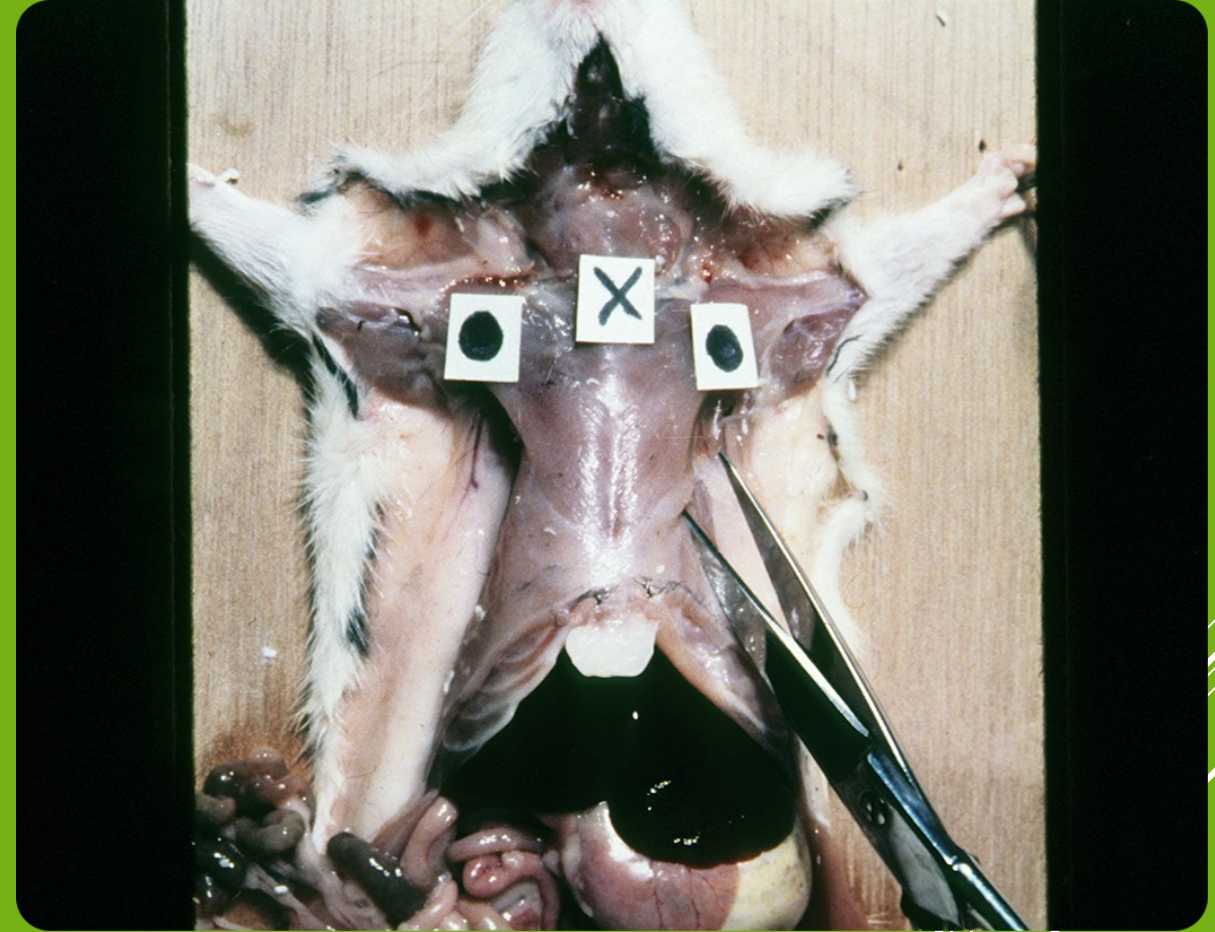
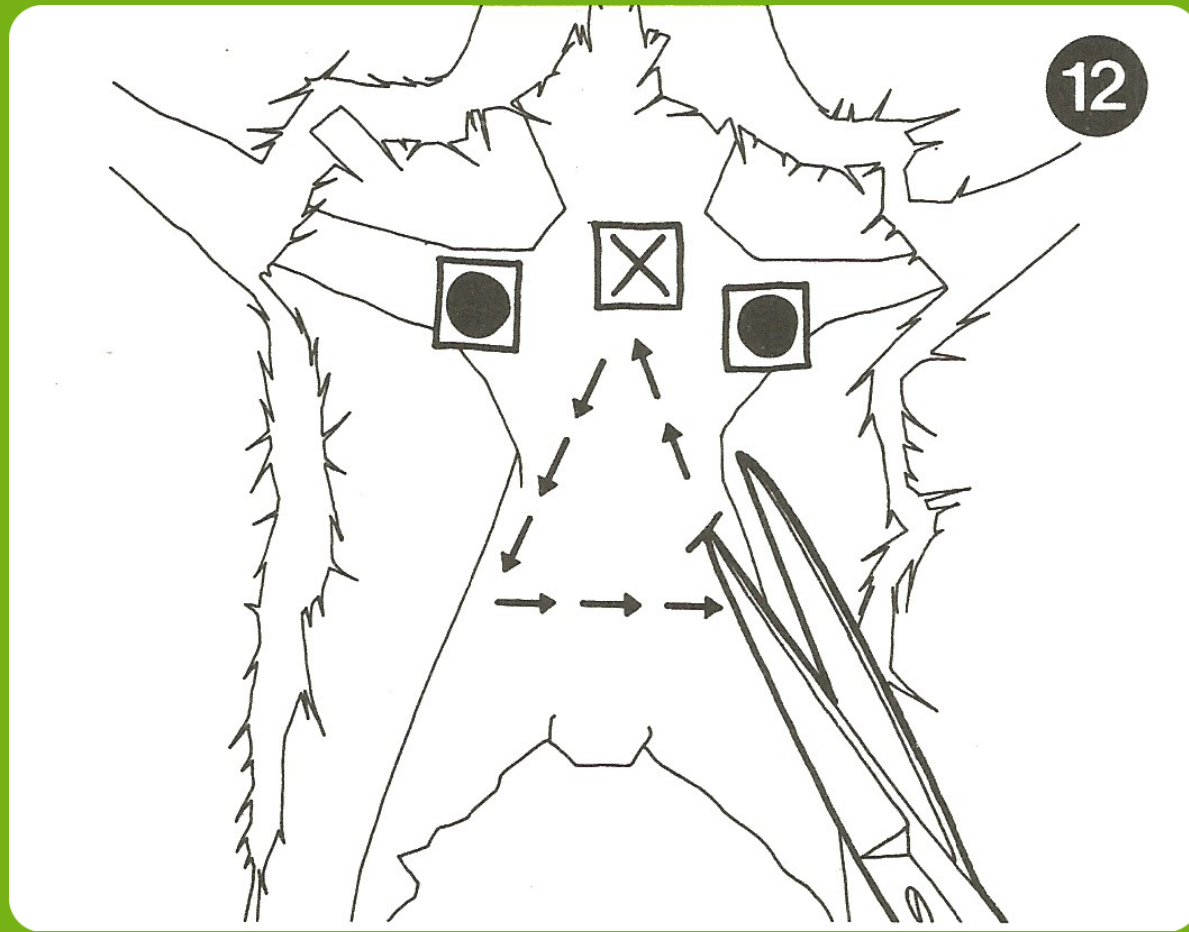
Ovary

Bladder



11. Displace the contents to one side to display as many structures as possible.

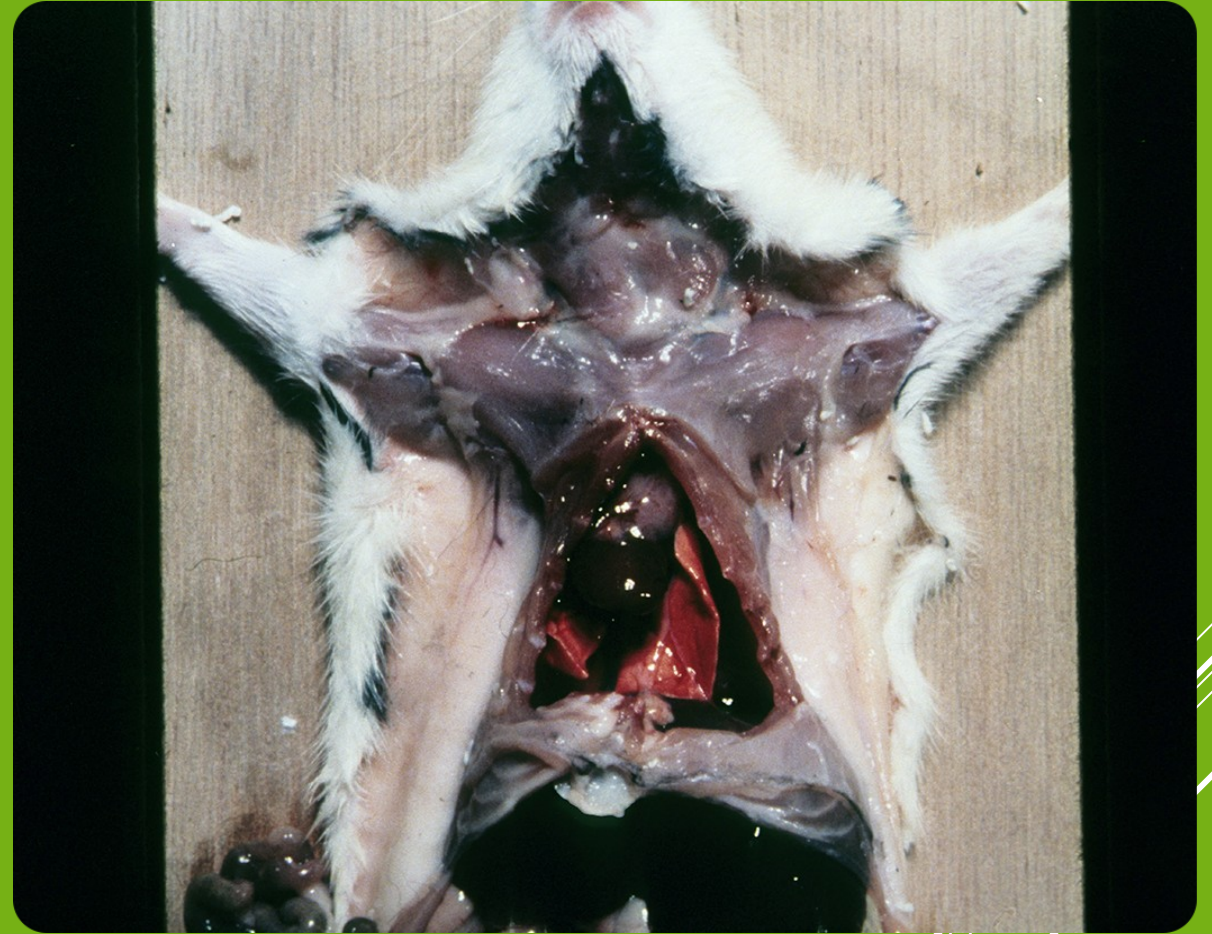
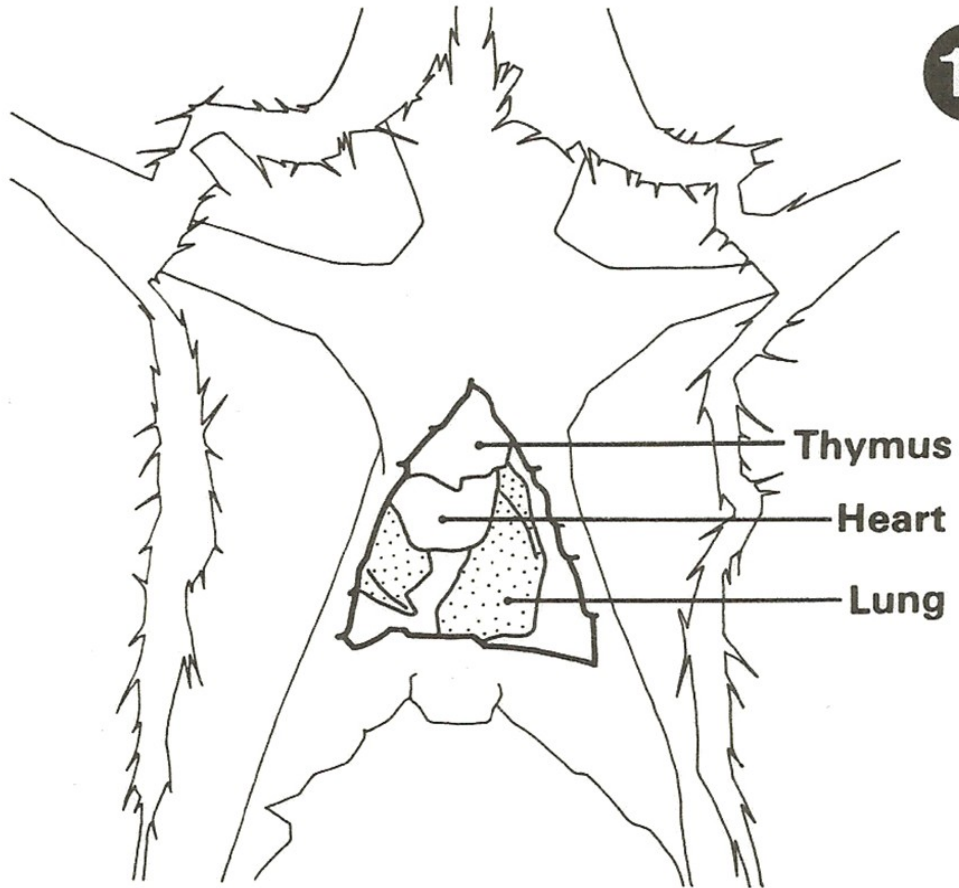




12. Penetrate the thoracic cavity by pushing the lower blade of the scissors between 2 ribs as shown. Cut up through the ribs to the centre point marked X, down along the other side, and across, well above the diaphragm. Avoid the regions indicated by the circles.

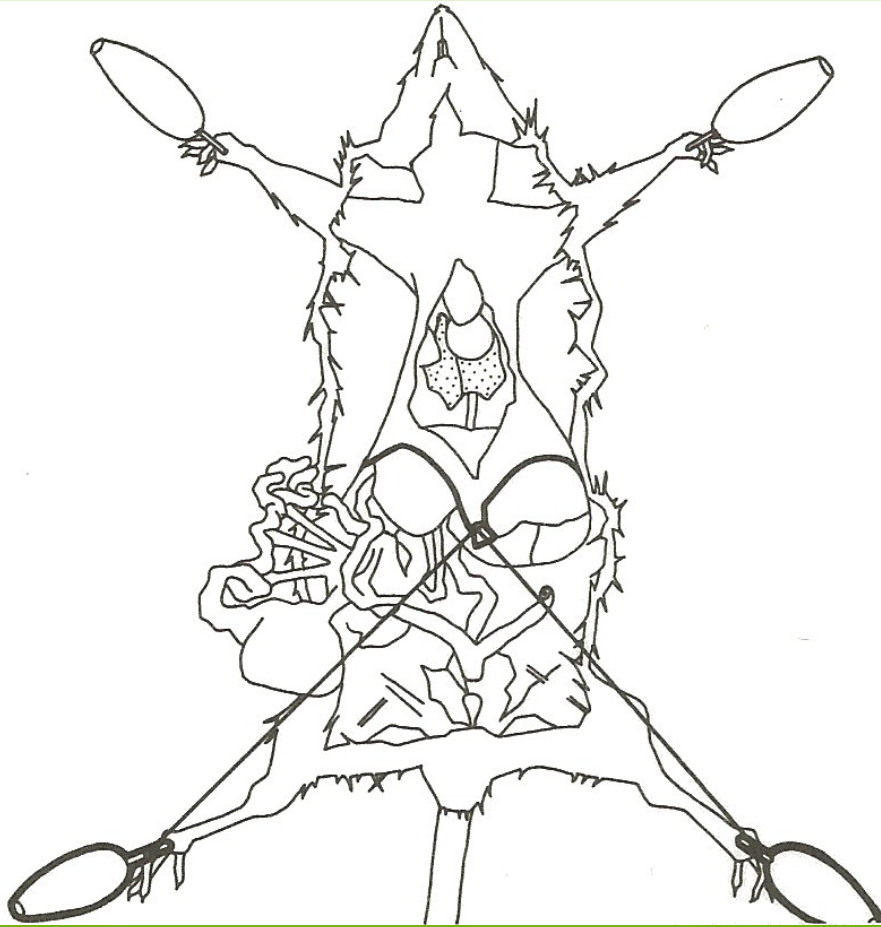


13

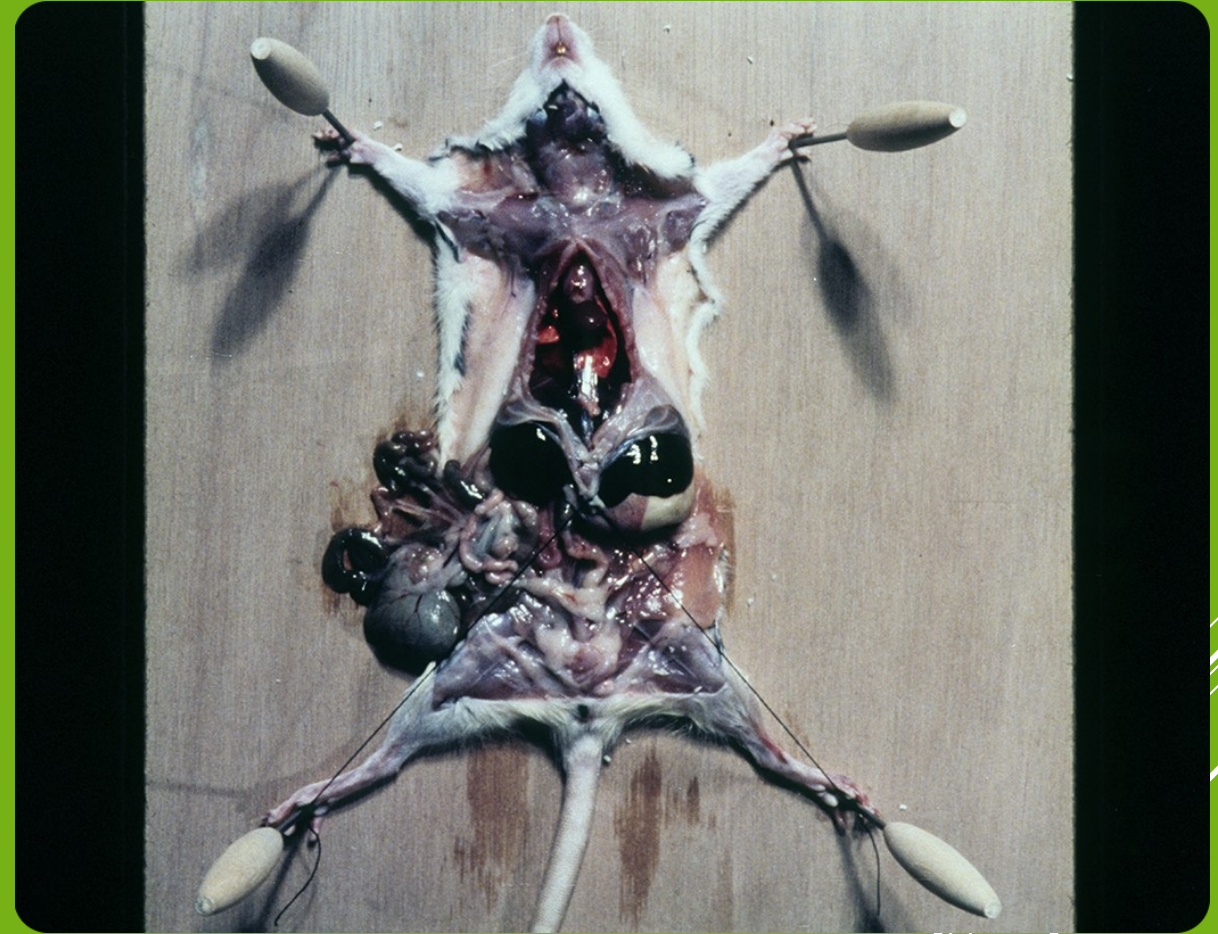


13. Remove the triangular section you have just cut around, to expose the thoracic contents.



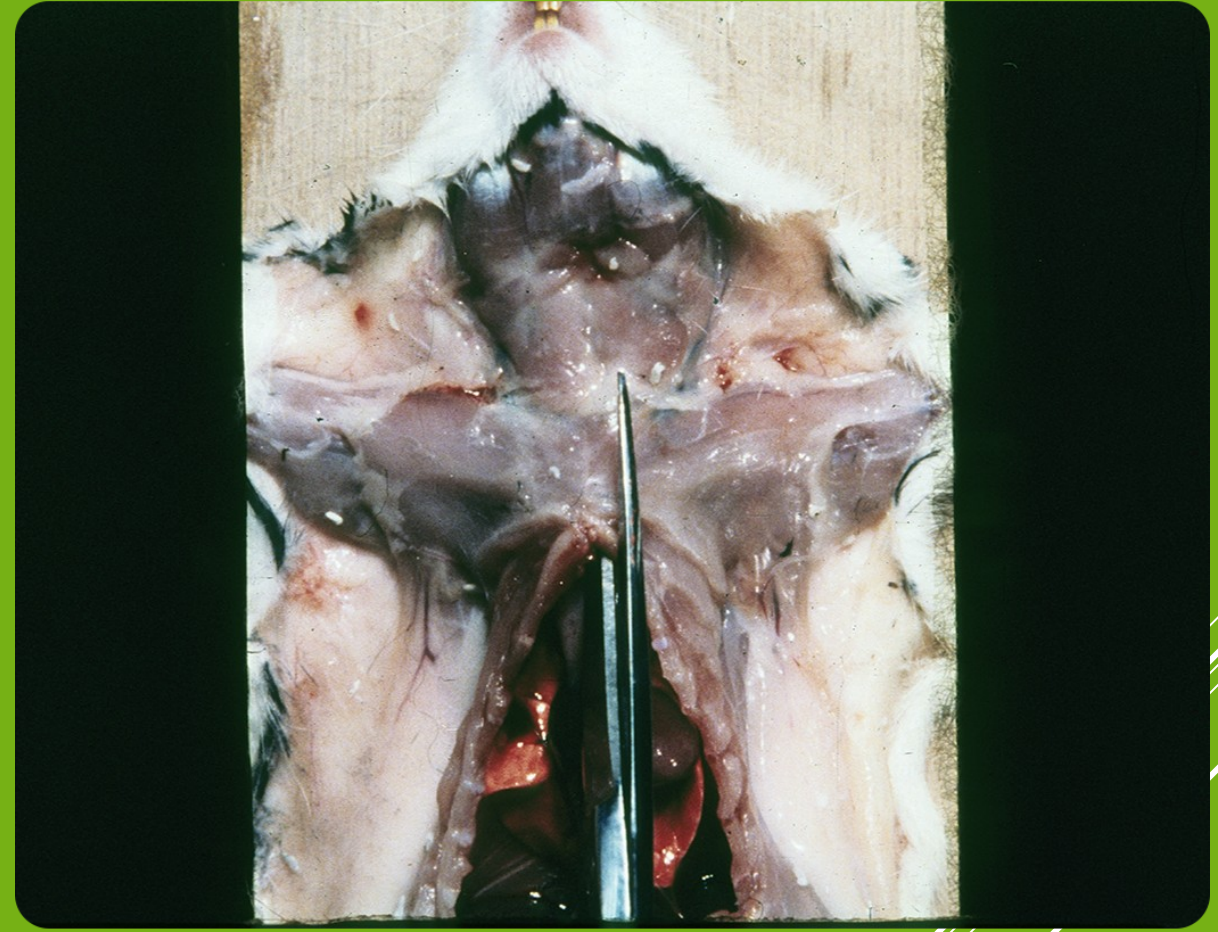
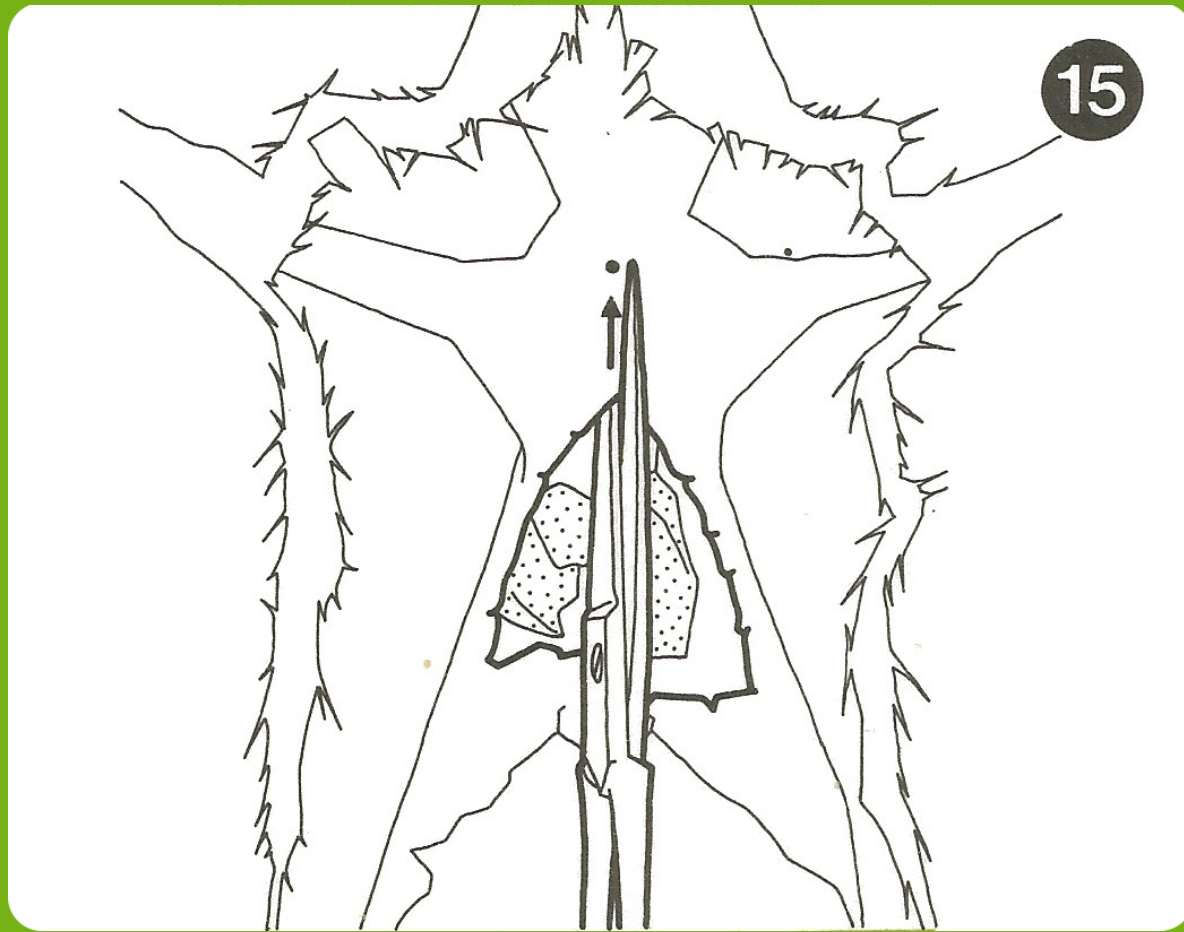


14



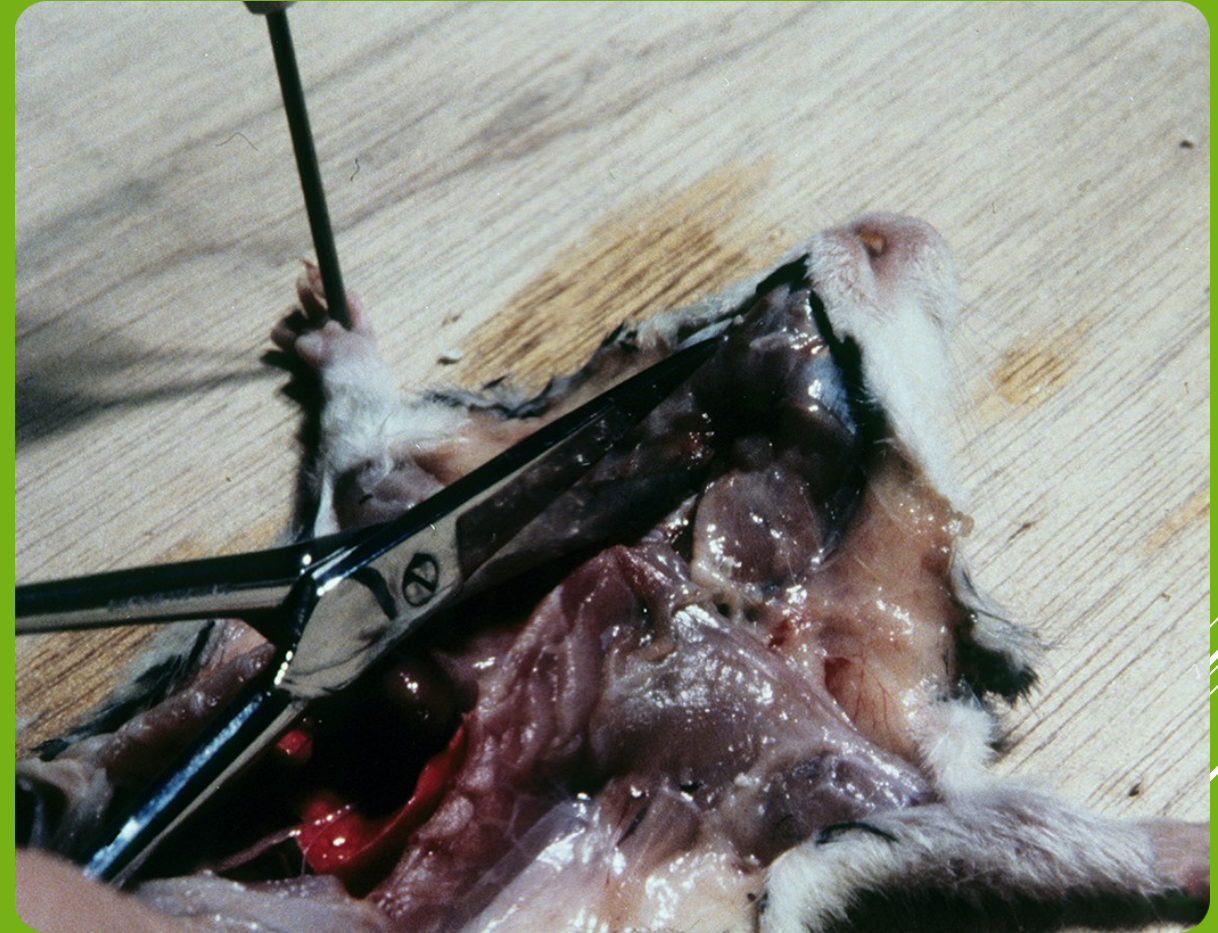
14. Tie some cotton around the xiphoid cartilage, pull back, and tie to the awls pinning the back legs.





15. Place lower blade of scissors under central point of the pectoral girdle, and keeping it forced upwards underneath the girdle cut through the bone.

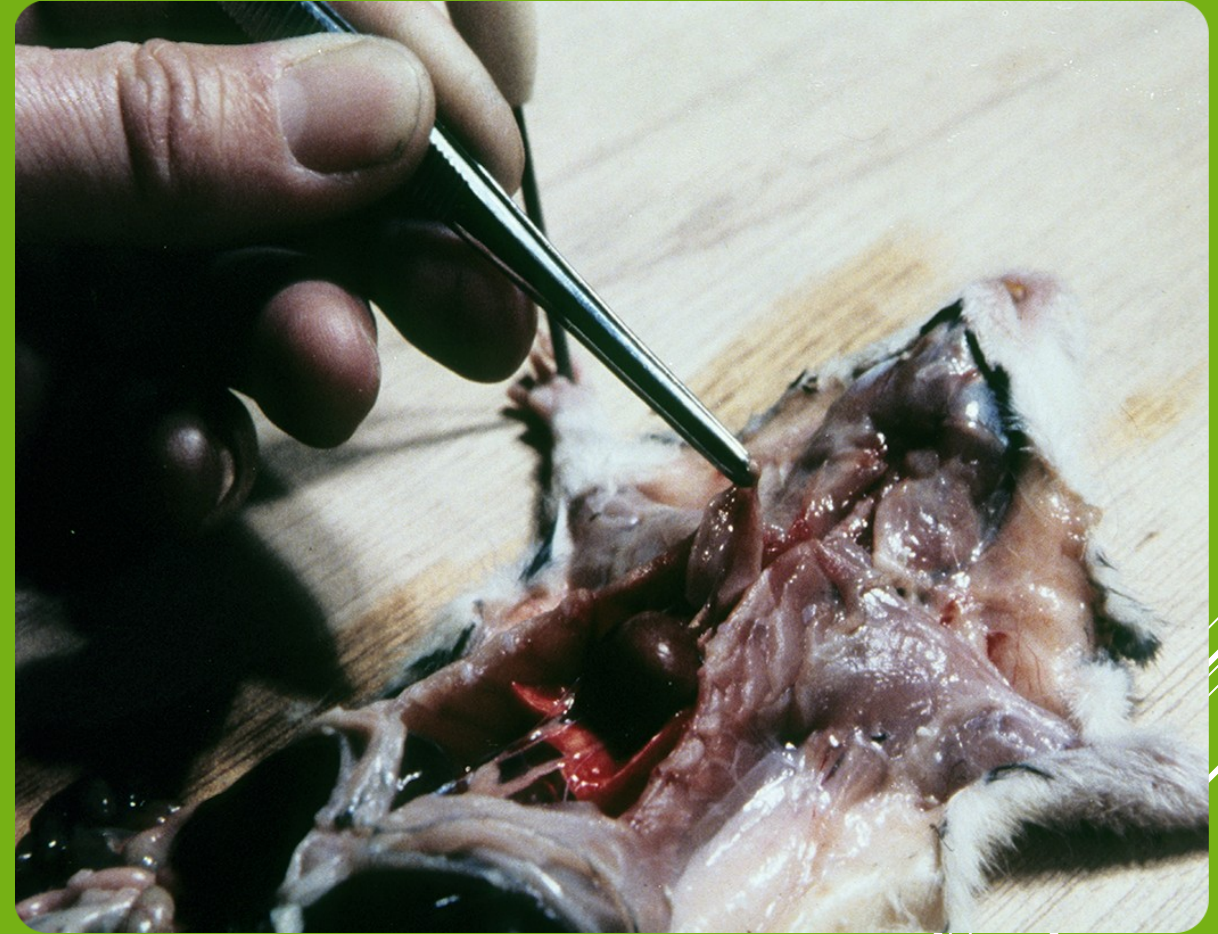
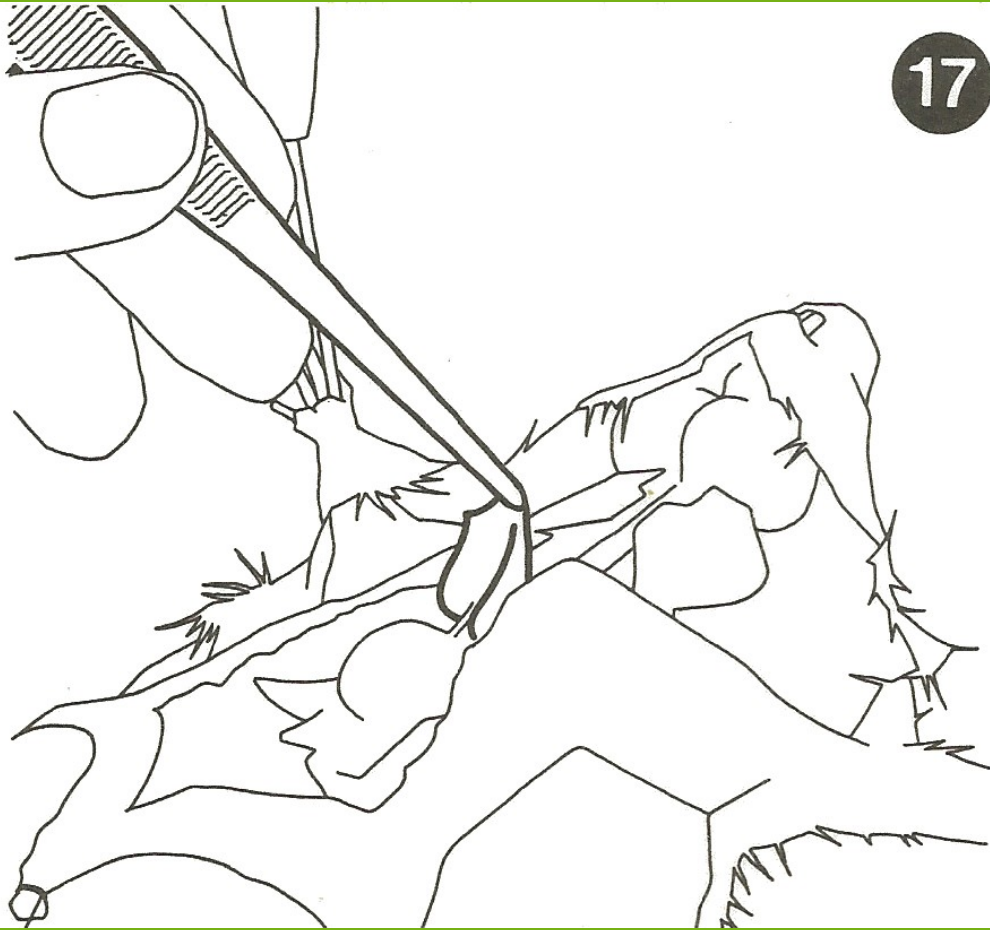




16. Extend the central cut up to the lower jaw.



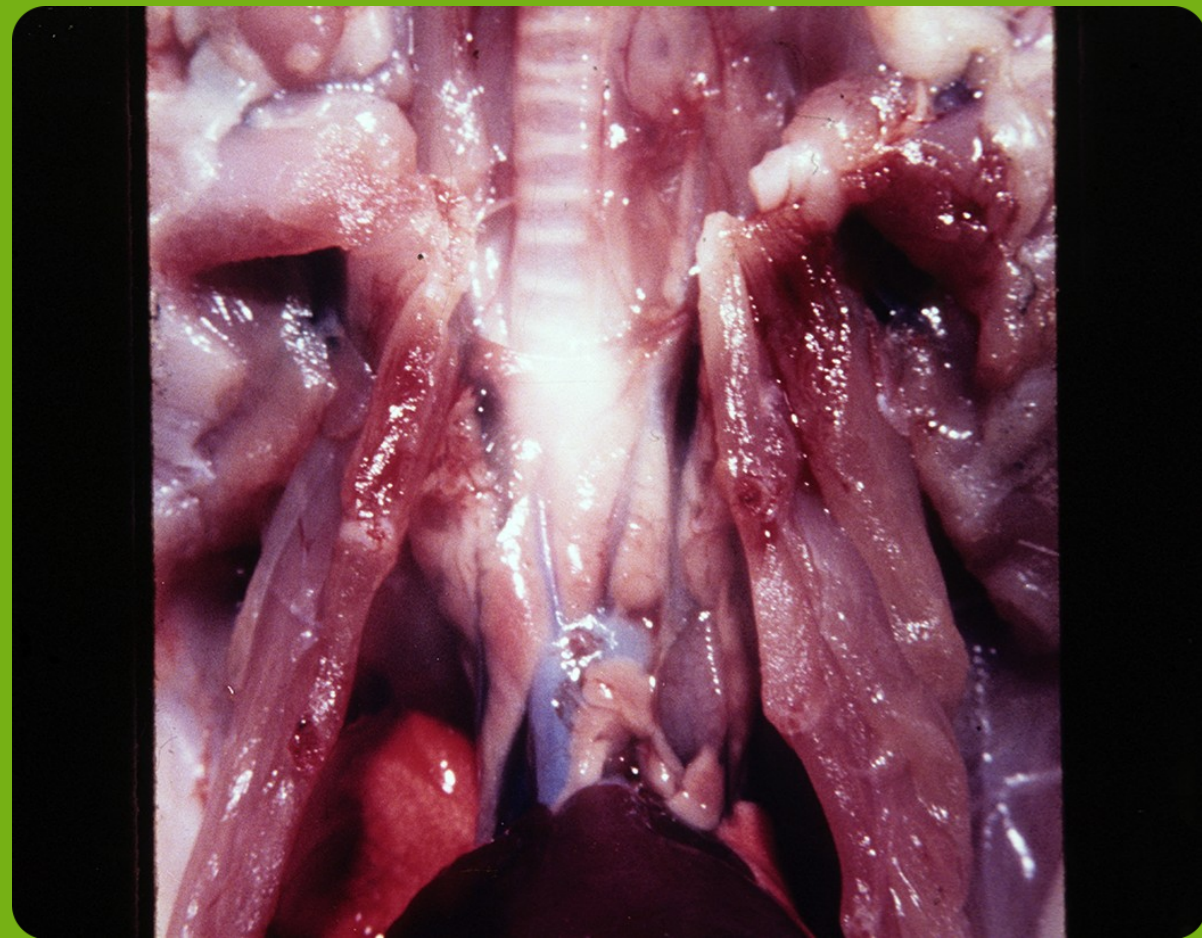
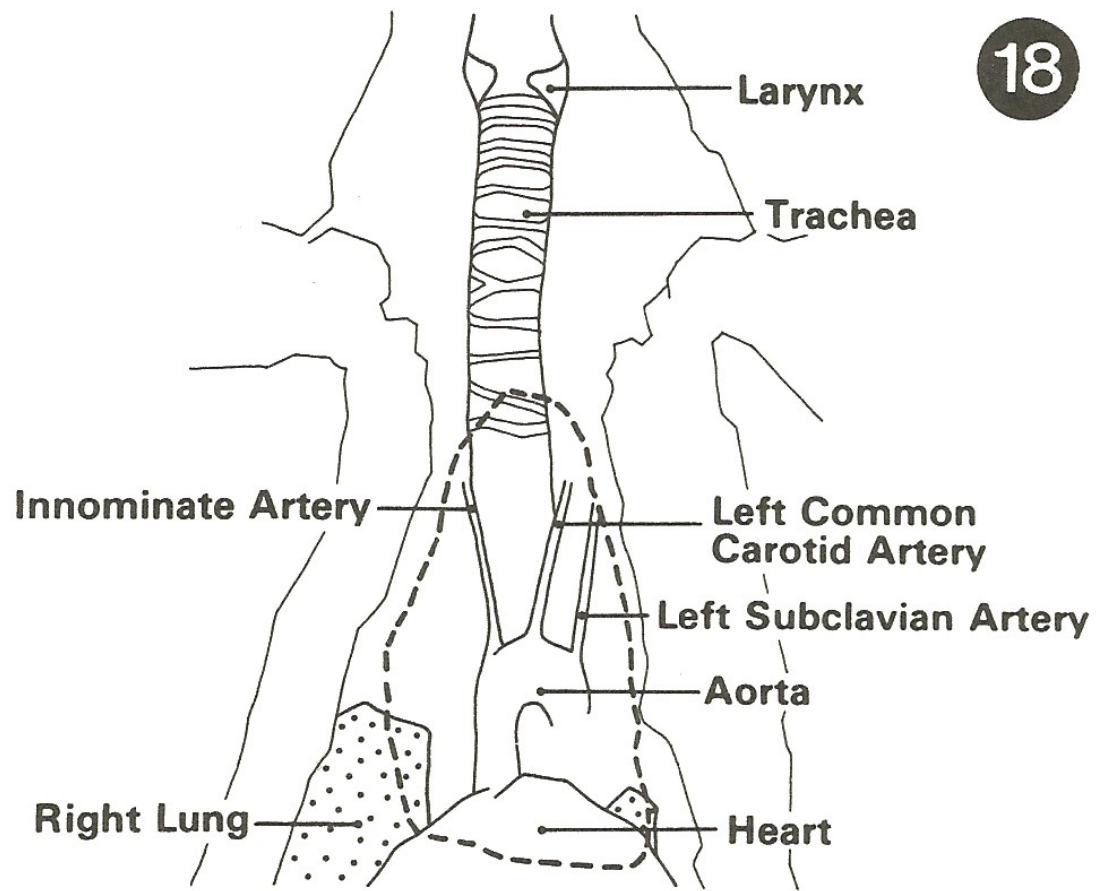
17



17. Remove the thymus by freeing it gently from the underlying blood vessels.



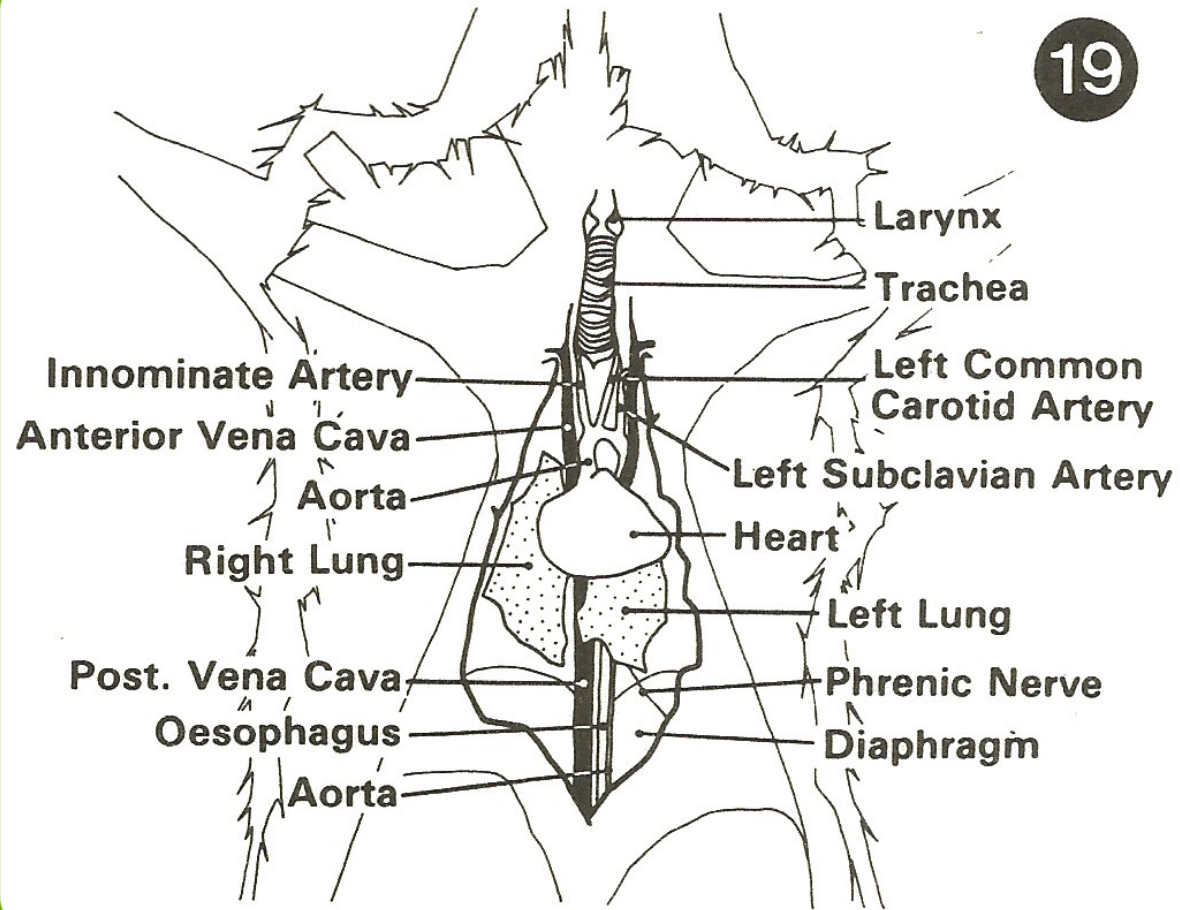
18



18. Close up of the regions cleared by the removal of the thymus.

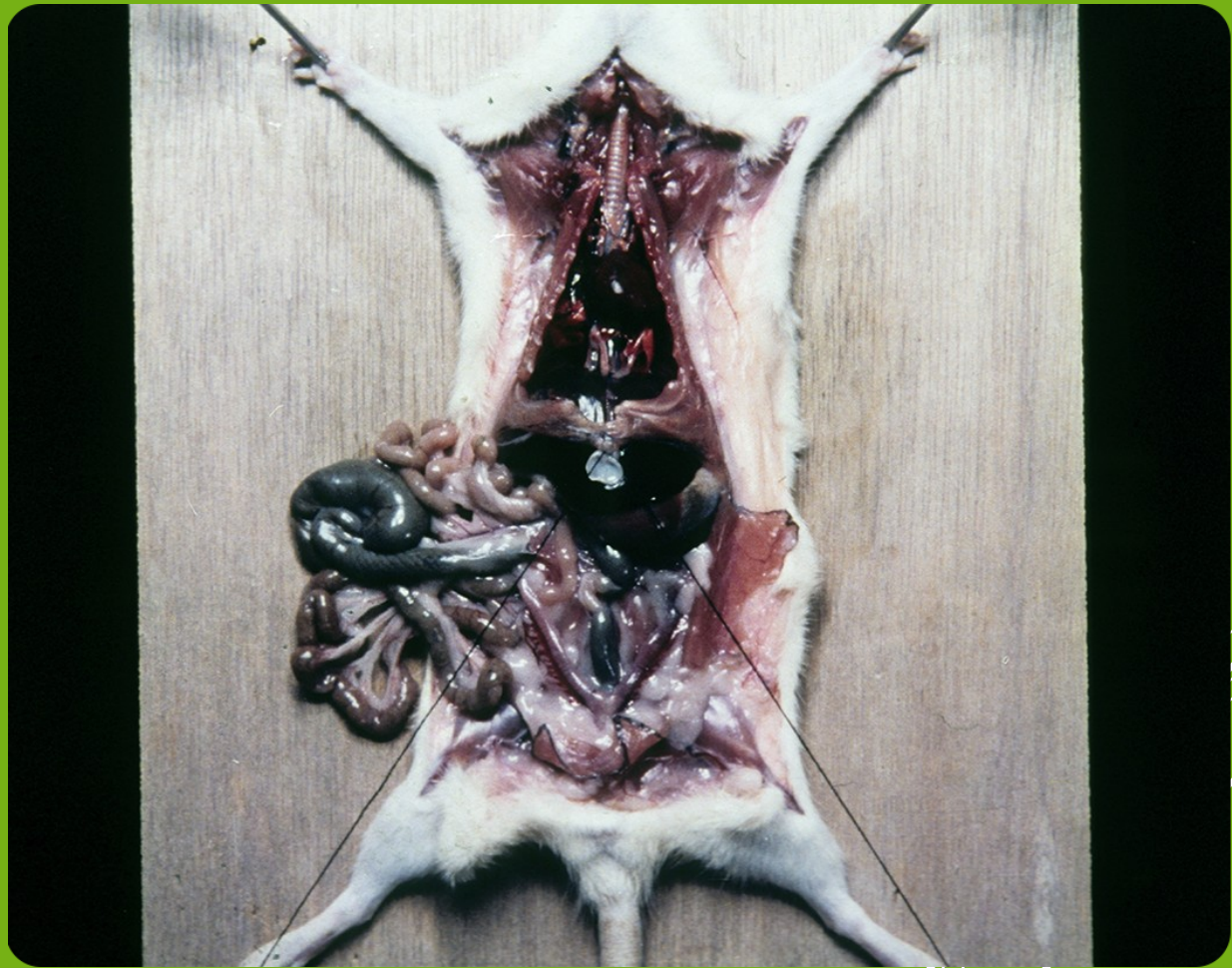
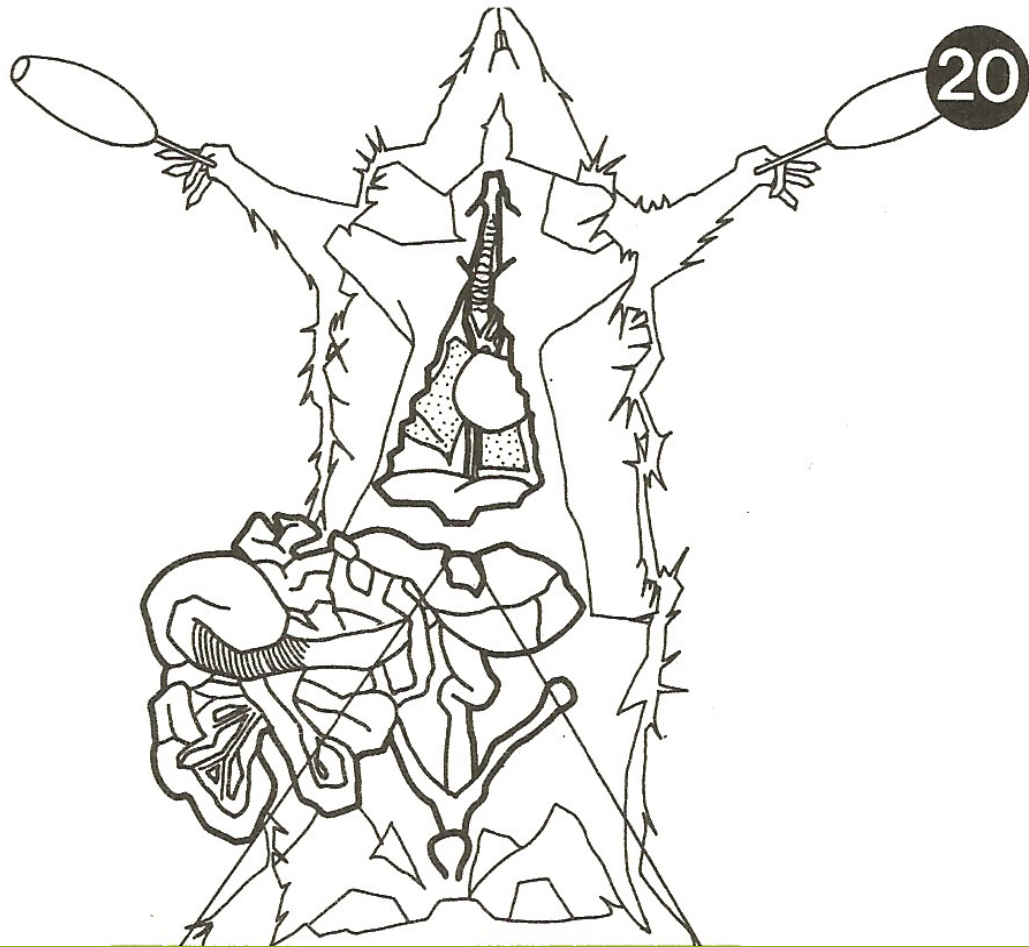


19



19. Identify as many structures as you can in your completed thoracic and neck dissection.





20. Your overall dissection should look like this.



TEACHERS GUIDE

AIMS

The aim of this material is to provide students with a clear set of instructions for the basic dissection of the rat. This should reduce mistakes in the early stages of the dissection, at which time the students need most help, and the teacher is most hard-pressed. The photographs enable the teacher to describe the necessary dissection techniques and to outline the position of some of the major structures in the body to a group of students. Also the photographs familiarize the students with the general appearance of the structures to be seen.

The drawings and their captions in the dissection guide serve as a set of instructions for each student during the course of the dissection. Once the basic dissection is completed, students will be able to proceed with a more detailed investigation of the anatomy with individual guidance from the teacher.

GENERAL DISSECTION OF THE RAT FRAME 1

Pin out the rat ventral side uppermost. The limbs must be stretched and the awls fixed very firmly into the board. Pinch up a fold of skin using your fingers or a pair of forceps. Pulling it away from the underlying muscles cut the fold off horizontally with scissors.

FRAME 2

The initial incision will be extended along the lines indicated using the small scissors.

FRAME 3

Lift one end of the initial incision with forceps and insert the lower blade of the scissors between the skin and underlying muscles. Keeping the lower blade of the scissors forced upwards under the skin, snip along the incision lines indicated.

FRAME 4

On the completion of the incision the skin will remain in place as it is attached to the underlying muscles by connective tissue. Lift some skin and observe this connective tissue.

FRAME 5

Free the skin from the underlying muscles by lifting a flap with forceps and scraping the underside of the skin along the length of the animal with a scalpel. This cuts the connective tissue and allows the skin to be laid back without damage to the underlying muscles. Small skin blood vessels may be cut, but this is of no consequence.

FRAME 6

Continue the loosening procedure until the area is cleared.

FRAME 7

Pinch up a fold of abdominal wall with forceps. Pulling it away from the underlying abdominal contents cut the fold off horizontally with scissors. This is the same technique as used in opening the skin.

FRAME 8

Identify the Xiphoid cartilage at the end of the sternum of the thoracic cavity and note the line of ribs under the muscles. Do not cut into the thoracic cavity. The lateral cuts should run just below the base of the thoracic cavity, and just in front of the hind legs.

FRAME 9

Lift a flap of the cut muscle with forceps and insert the lower blade of the scissors underneath the muscle layer, taking care not to puncture the underlying gut. Keeping the lower blade of the scissors forced upwards under the muscle layer, snip along the incision lines indicated. This is the same technique used in extending the incisions of the skin.

FRAME 10

Examine the abdominal contents in place and identify as many of the structures as you can. Some structures might be obscured by fat deposits which are amorphous and yellow white in colour. Also some variation occurs in individual rats as to the placement of various parts of the gut in the abdomen. Therefore do not be too concerned if the gut of your rat differs slightly from that shown in the photograph and in the dissection guide.

FRAME 11

Displace the contents to one side to display as many structures as possible.

FRAME 12

Now clear the skin well back from the neck and the thorax and identify the limits of the thoracic cavity. Trace those lines on your dissection. Penetrate the thoracic cavity by pushing the lower blade of the scissors between two ribs in the region shown on the slide.

Keeping the lower blade of the scissors forced upwards cut up through the ribs to the centre point marked X on the slide, being careful at the point marked with the black dots on the slide, as this is where major blood vessels radiate to the forelimbs. Continue cutting around the thoracic cavity, taking great care not to damage the diaphragm which must be kept intact, if the thoracic dissection is to be successful.

FRAME 13

Remove the central section that you have just cut around, thus exposing the contents of the thorax.

FRAME 14

Tie some cotton around the xiphoid cartilage, pull it towards the abdomen and tie the cotton to the awls pinning the back legs. This stretches the thoracic contents making them easier to see and identify.

FRAME 15

To extend the thoracic dissection into the neck it is necessary to cut through the pectoral girdle. Place the lower blade of the scissors under the central point of the pectoral girdle, and, forcing the lower blade up under the girdle, cut through the bone.

FRAME 16

Restretch the front legs to open up the break in the pectoral girdle. Continue the central cut through the soft tissue lying on top of the trachea in the mid-line, right up to the lower jaw.

FRAME 17

Identify the thymus lying over the heart and major blood vessels. Lift this with tweezers, and carefully remove it, freeing it carefully from the underlying blood vessels.

FRAME 18

This shows the region cleared by the removal of the thymus.

FRAME 19

This marks the end of the opening of the thorax and the neck, and your dissection should now look like that shown. Identify as many structures as you can.

FRAME 20

Your overall dissection should now look like that shown, and you are now ready to proceed with the more detailed dissection of the internal anatomy.

